

Service Manual



Service Manual

KF600d



Model : KF600d



REVISED HISTORY

Editor	Date	Issue	Contents of Changes	S/W Version
D.H.AHN	12/24	0.1		

* The information in this manual is subject to change without notice and should not be construed as a commitment by LGE Inc. Furthermore, LGE Inc. reserves the right, without notice, to make changes to equipment design as advances in engineering and manufacturing methods warrant.

* This manual provides the information necessary to install, program, operate and maintain the KF600.



Table Of Contents

1. INTRODUCTION	7	5. Trouble shooting.....	71
1.1 Purpose	7	5.1 Trouble shooting test setup.....	71
1.2 Regulatory Information.....	7	5.2 Power on Trouble.....	72
1.3 ABBREVIATION	9	5.3 Charging trouble	75
2. PERFORMANCE.....	11	5.4 LCD display trouble.....	77
2.1 H/W Features.....	11	5.5 Camera Trouble	79
2.2 Technical specification.....	12	5.6 Receiver & Speaker trouble	81
3. TECHNICAL BRIEF	19	5.7 Microphone trouble	83
3.1 KF600 Functional Block diagram.....	19	5.8 Vibrator trouble	84
3.2 Baseband Processor (BBP) Introduction	20	5.9 Keypad back light trouble.....	86
3.3 Power management IC	32	5.10 SIM & uSD trouble	88
3.4 Power ON/OFF	37	5.11 Touch pad trouble	91
3.5 SIM & uSD interface	38	5.12 Trouble Shooting of Receiver Part.....	92
3.6 Memory	40	5.13 Trouble Shooting of Transmitter Part...	98
3.7 LCD Display	41	6. Download & S/W upgrade.....	107
3.8 Keypad Switching & Scanning	43	6.1 S/W download setup.....	107
3.9 Keypad back-light illumination	44	6.2 Download program user guide	108
3.10 LCD back-light illumination	45	7. CIRCUIT DIAGRAM.....	111
3.11 Battery current consumption monitor...	46	8. BGM PIN MAP	117
3.12 JTAG & ETM interface connector	46	9. PCB LAYOUT	123
3.13 ISP(Image Signal Processor).....	47	10. RF Calibration	129
3.14 Audio.....	48	10.1 Test Equipment Setup	129
3.15 Multi port switch	51	10.2 Calibration Step	129
3.16 charging circuit	52	11. Stand-alone Test	135
3.17 FM radio & BLUETOOTH	53	11.1 Test Program Setting	157
3.18 18pin Multi Media Interface connector.	56	11.3 Rx Test.....	159
3.19 Touchpad Interface	58	12. ENGINEERING MODE	139
3.20 General Description	59	13. EXPLODED VIEW & REPLACEMENT PART LIST	141
3.21 Receiver part.....	61	13.1 Exploded View	141
3.22 Transmitter part.....	62	13.2 Replacement Parts	143
3.23 RF synthesizer	63	13.3 Accessory	165
3.24 VCTCXO	63		
3.25 Front End Module control.....	64		
3.26 Power Amplifier Module	65		
3.27 Mode Selection	66		
3.28 PAM Schematic	66		
4. PCB layout.....	67		
4.1 Main & Sub PCB component placement	67		



1. INTRODUCTION

1.1. Purpose

This manual provides the information necessary to repair, calibration, description and download the features of the KF600.

1.2. Regulatory Information

A. Security

Toll fraud, the unauthorized use of telecommunications system by an unauthorized part (for example, persons other than your company's employees, agents, subcontractors, or person working on your company's behalf) can result in substantial additional charges you're your telecommunications services. System users are responsible for the security of own system.

There are may be risks of toll fraud associated with your telecommunications system. System users are responsible for programming and configuring the equipment to prevent unauthorized use. LGE does not warrant that this product is immune from the above case but will prevent unauthorized use of common-carrier telecommunication service of facilities accessed through or connected to it. LGE will not be responsible for any charges that result from such unauthorized use.

B. Incidence of Harm

If a telephone company determines that the equipment provided to customer is faulty and possibly causing harm or interruption in service to the telephone network, it should disconnect telephone service until repair can be done. A telephone company may temporarily disconnect service as long as repair is not done.

C. Changes in Service

A local telephone company may make changes in its communications facilities or procedure. If these changes could reasonably be expected to affect the use of the KF600 or compatibility with the network, the telephone company is required to give advanced written notice to the user, allowing the user to take appropriate steps to maintain telephone service.

D. Maintenance Limitations

Maintenance limitations on the KF600 must be performed only at the LGE or its authorized agents. The user may not make any changes and/or repairs except as specifically noted in this manual. Therefore, note that unauthorized alternations or repair may affect the regulatory status of the system and may void any remaining warranty.

1. INTRODUCTION

E. Notice of Radiated Emissions

The KF600 complies with rules regarding radiation and radio frequency emission as defined by local regulatory agencies. In accordance with these agencies, you may be required to provide information such as the following to the end user.

F. Pictures

The pictures in this manual are for illustrative purposes only; your actual hardware may look slightly different.

G. Interference and Attenuation

An KF600 may interfere with sensitive laboratory equipment, medical equipment, etc. Interference from unsuppressed engines or electric motors may cause problems.

H. Electrostatic Sensitive Devices

ATTENTION

Boards, which contains Electrostatic Sensitive Device(ESD), are indicated by the sign.

Following information is ESD handling: Service personnel should ground themselves by using a wrist strap when exchange system boards.

When repairs are made to a system board, they should spread the floor with anti-static mat which is also grounded. Use a suitable, grounded soldering iron. Keep sensitive parts in these protective packages until these are used. When returning system boards or parts such as EEPROM to the factory, use the protective package as described.

1.3. ABBREVIATION

For the purposes of this manual, following abbreviations apply:

APC	Automatic Power Control
BB	Baseband
BER	Bit Error Ratio
CC-CV	Constant Current - Constant Voltage
CLA	Cigar Lighter Adapter
DAC	Digital to Analog Converter
DCS	Digital Communication System
dBm	dB relative to 1 milli-watt
DSP	Digital Signal Processing
EEPROM	Electrical Erasable Programmable Read-Only Memory
EGPRS	Enhanced General Packet Radio Service
EL	Electroluminescence
ESD	Electrostatic Discharge
FPCB	Flexible Printed Circuit Board
GMSK	Gaussian Minimum Shift Keying
GPIB	General Purpose Interface Bus
GPRS	General Packet Radio Service
GSM	Global System for Mobile Communications
IPUI	International Portable User Identity
IF	Intermediate Frequency
LCD	Liquid Crystal Display
LDO	Low Drop Output
LED	Light Emitting Diode

1. INTRODUCTION

LGE	LG Electronics
OPLL	Offset Phase Locked Loop
PAM	Power Amplifier Module
PCB	Printed Circuit Board
PGA	Programmable Gain Amplifier
PLL	Phase Locked Loop
PSTN	Public Switched Telephone Network
RF	Radio Frequency
RLR	Receiving Loudness Rating
RMS	Root Mean Square
RTC	Real Time Clock
SAW	Surface Acoustic Wave
SIM	Subscriber Identity Module
SLR	Sending Loudness Rating
SRAM	Static Random Access Memory
STMR	Side Tone Masking Rating
TA	Travel Adapter
TDD	Time Division Duplex
TDMA	Time Division Multiple Access
UART	Universal Asynchronous Receiver/Transmitter
VCO	Voltage Controlled Oscillator
VCTCXO	Voltage Control Temperature Compensated Crystal Oscillator
WAP	Wireless Application Protocol
8PSK	8 Phase Shift Keying

2. GENERAL PERFORMANCE

2.1. H/W Feature

Item	Feature	Comment
Standard Battery	Li-ion, 800mAh	
AVG TCVR Current	270mA typ	@PL5
Standby Current	2.3 mA typ	@PP9
Talk time	3 hours (GSM TX Level 7)	
Standby time	Over 250 hours (Paging Period:9, RSSI: -85dBm)	
Charging time	Under 3 hours	
RX Sensitivity	EGSM: -105dBm↓, DCS/PCS: -105dBm↓	
TX output power	EGSM: 33dBm (@PL 5) DCS/PCS: 30/29dBm (@PL 0)	
GPRS compatibility	Class 10	
SIM card type	3V Small	
Display	Main 240 x 320 pixels, 2" ± QVGA, 265K color, SUB 1.49" ± 240x176 TFT	
Status Indicator	Navi, Send, Call End, Back and etc. Key are implemented by touchpad. CLEAR, SEND, END/PWR, MP3, AF/Camera double action, Volume Up, Volume Down, Lock	
ANT	Built in antenna	
EAR Phone Jack	18pin multi port Headset jack	
PC Synchronization	Yes	
Speech coding	HR/EFR/FR/AMR	
Data and Fax	Yes	
Vibrator	Yes	
Buzzer	No	
Voice Recoding	Yes	
C-Mic	Yes	
Receiver	Yes	
Travel Adapter	Yes	
Options	Bluetooth hands-free kit, Data Kit	

2. GENERAL PERFORMANCE

2.2. Technical specification

Item	Description	Specification					
1	Frequency Band	GSM900 • TX: 890 + 0.2 x n MHz • RX: 935 + 0.2 x n MHz (n = 1 ~ 124) EGSM • TX: 890 + 0.2 x (n-1024) MHz • RX: 935 + 0.2 x (n-1024) MHz (n = 975 ~ 1023) DCS1800 • TX: 1710 + (n-511) x 0.2 MHz (n = 512 ~ 885) • RX: TX + 95 MHz PCS1900 • TX: 1850.2 + (n-512) x 0.2 MHz (n = 512 ~ 810) • RX: TX + 80MHz					
2	Phase Error	RMS < 5 degrees Peak < 20 degrees					
3	Frequency Error	< 0.1ppm					
4	Power Level	GSM900/EGSM					
		Level	Power	Toler.	Level	Power	Toler.
		5	33 dBm	±2dB	13	17 dBm	±3dB
		6	31 dBm	±3dB	14	15 dBm	±3dB
		7	29 dBm	±3dB	15	13 dBm	±3dB
		8	27 dBm	±3dB	16	11 dBm	±5dB
		9	25 dBm	±3dB	17	9 dBm	±5dB
		10	23 dBm	±3dB	18	7 dBm	±5dB
		11	21 dBm	±3dB	19	5 dBm	±5dB
		12	19 dBm	±3dB			
		DCS1800/PCS1900					
		Level	Power	Toler.	Level	Power	Toler.
		0	30 dBm	±2dB	8	14 dBm	±3dB
		1	28 dBm	±3dB	9	12 dBm	±4dB
		2	26 dBm	±3dB	10	10 dBm	±4dB
		3	24 dBm	±3dB	11	8 dBm	±4dB
		4	22 dBm	±3dB	12	6 dBm	±4dB
		5	20 dBm	±3dB	13	4 dBm	±4dB
		6	18 dBm	±3dB	14	2 dBm	±5dB
7	16 dBm	±3dB	15	0 dBm	±5dB		

2. GENERAL PERFORMANCE

Item	Description	Specification	
5	Output RF Spectrum (due to modulation)	GSM900/EGSM	
		Offset from Carrier (kHz).	Max. dBc
		100	+0.5
		200	-30
		250	-33
		400	-60
		600 ~ <1,200	-60
		1,200 ~ <1,800	-60
		1,800 ~ <3,000	-63
		3,000 ~ <6,000	-65
		6,000	-71
		DCS1800/PCS1900	
		Offset from Carrier (kHz).	Max. dBc
		100	+0.5
		200	-30
		250	-33
		400	-60
		600 ~ <1,200	-60
		1,200 ~ <1,800	-60
		1,800 ~ <3,000	-65
		3,000 ~ <6,000	-65
		6,000	-73
6	Output RF Spectrum (due to switching transient)	GSM900/EGSM	
		Offset from Carrier (kHz)	Max. (dBm)
		400	-19
		600	-21
		1,200	-21
		1,800	-24

2. GENERAL PERFORMANCE

Item	Description	Specification		
6	Output RF Spectrum (due to switching transient)	DCS1800/PCS1900		
		Offset from Carrier (kHz).		Max. (dBm)
		400		-22
		600		-24
		1,200		-24
		1,800		-27
7	Spurious Emissions	Conduction, Emission Status		
8	Bit Error Ratio	EGSM BER (Class II) < 2.439% @-102dBm		
		DCS1800/PCS1900 BER (Class II) < 2.439% @-100dBm		
9	Rx Level Report accuracy	± 3 dB		
10	SLR	8 ± 3 dB		
11	Sending Response	Frequency (Hz)	Max.(dB)	Min.(dB)
		100	-12	-
		200	0	-
		300	0	-12
		1,000	0	-6
		2,000	4	-6
		3,000	4	-6
		3,400	4	-9
		4,000	0	-
12	RLR	2 ± 3 dB		
13	Receiving Response	Frequency (Hz)	Max.(dB)	Min.(dB)
		100	-12	-
		200	0	-
		300	2	-7
		500	*	-5
		1,000	0	-5
		3,000	2	-5
		3,400	2	-10
		4,000	2	
		* Mean that Adopt a straight line in between 300 Hz and 1,000 Hz to be Max. level in the range.		

2. GENERAL PERFORMANCE

Item	Description	Specification	
14	STMR	13 ±5 dB	
15	Stability Margin	> 6 dB	
16	Distortion	dB to ARL (dB)	Level Ratio (dB)
		-35	17.5
		-30	22.5
		-20	30.7
		-10	33.3
		0	33.7
		7	31.7
		10	25.5
17	Side Tone Distortion	Three stage distortion < 10%	
18	System frequency (26 MHz) tolerance	≤ 2.5ppm	
19	32.768KHz tolerance	≤ 30ppm	
20	Power consumption	Standby - Normal ≤ 3 mA(@PP9)	
21	Talk Time	EGSM/Lvl 7 (Battery Capacity 800mA):180 min EGSM/Lvl12(Battery Capacity 800 mA):320min	
22	Standby Time	Under conditions, at least 300 hours: 1. Brand new and full 800mAh battery 2. Full charge, no receive/send and keep GSM in idle mode. 3. Broadcast set off. 4. Signal strength display set at 3 level above. 5. Backlight of phone set off.	
23	Ringer Volume	At least 65 dB under below conditions: 1. Ringer set as ringer. 2. Test distance set as 50 cm	
24	Charge Current	Fast Charge: < 550 mA Slow Charge: < 120 mA	
25	Antenna Display	Antenna Bar Number	Power
		7	>-92 dBm ~
		5	-97dBm ~ -93dBm
		4	-100dBm ~ -98dBm
		2	-103dBm ~ -101dBm
		1	-105dBm ~ -104dBm
		0	< -106 dBm
		Off	No Service

2. GENERAL PERFORMANCE

Item	Description	Specification
26	Battery Indicator	Battery Bar Number Voltage($\pm 0.05V$)
		3 3.69V ~ 4.2V
		2 3.53V ~ 3.69V
		1 3.43V ~ 3.53V
		0 3.30V ~ 3.43V
27	Low Voltage Warning	3.53V↓ $\pm 0.05V$ (Call)
		3.43V↓ $\pm 0.05V$ (Standby)
28	Forced shut down Voltage	$3.3 \pm 0.05 V$
29	Battery Type	Li-ion Battery Standard Voltage = 3.7 V Battery full charge voltage = 4.2 V Capacity: 800mAh
31	Travel Charger	Switching-mode charger Input: 100 ~ 240 V, 50/60Hz Out put: 4.8, 0.9A

2. GENERAL PERFORMANCE

* EDGE RF Specification (Option: is not serviced for “EDGE mode”)

Item	Description	Specification					
1	RMS EVM	$\leq 9\%$					
2	Peak EVM	$\leq 30\%$					
3	95 th Percentile EVM	$\leq 15\%$					
4	Origin Offset Suppression	$\geq 30\text{dB}$					
5	Power Level	GSM900/EGSM					
		Level	Power	Toler.	Level	Power	Toler.
		5	27dBm	$\pm 3\text{dB}$	13	17dBm	$\pm 3\text{dB}$
		6	27dBm	$\pm 3\text{dB}$	14	15dBm	$\pm 3\text{dB}$
		7	27dBm	$\pm 3\text{dB}$	15	13dBm	$\pm 3\text{dB}$
		8	27dBm	$\pm 3\text{dB}$	16	11dBm	$\pm 5\text{dB}$
		9	25dBm	$\pm 3\text{dB}$	17	9dBm	$\pm 5\text{dB}$
		10	23dBm	$\pm 3\text{dB}$	18	7dBm	$\pm 5\text{dB}$
		11	21dBm	$\pm 3\text{dB}$	19	5dBm	$\pm 5\text{dB}$
		12	19dBm	$\pm 3\text{dB}$			
		DCS1800, PCS1900					
		Level	Power	Toler.	Level	Power	Toler.
		0	26/25dBm	$\pm 3\text{dB}$	8	14 dBm	$\pm 3\text{dB}$
		1	26/25dBm	$\pm 3\text{dB}$	9	12 dBm	$\pm 4\text{dB}$
		2	26/25dBm	$\pm 3\text{dB}$	10	10 dBm	$\pm 4\text{dB}$
		3	24 dBm	$\pm 3\text{dB}$	11	8 dBm	$\pm 4\text{dB}$
		4	22 dBm	$\pm 3\text{dB}$	12	6 dBm	$\pm 4\text{dB}$
		5	20 dBm	$\pm 3\text{dB}$	13	4 dBm	$\pm 4\text{dB}$
		6	18 dBm	$\pm 3\text{dB}$	14	2 dBm	$\pm 5\text{dB}$
		7	16 dBm	$\pm 3\text{dB}$	15	0 dBm	$\pm 5\text{dB}$
6	Output RF Spectrum (due to modulation)	GSM900/EGSM					
		Offset from carrier(kHz)			Max. dBc		
		100			+0.5		
		200			-30		
		250			-33		
		400			-54		
		600 ~ <1,200			-60		
		1,200 ~ <1,800			-60		
		1,800 ~ <3,000			-63		
		3,000 ~ <6,000			-65		
		6,000			-71		

2. GENERAL PERFORMANCE

Item	Description	Specification	
6	Output RF Spectrum (due to modulation)	DCS1800, PCS1900	
		Offset from carrier(kHz)	Max. dBc
		100	+0.5
		200	-30
		250	-33
		400	-54
		600 ~ <1,200	-60
		1,200 ~ <1,800	-60
		1,800 ~ <3,000	-63
		3,000 ~ <6,000	-65
		6,000	-71
7	Output RF Spectrum (due to switching transient)	GSM900/EGSM	
		Offset from carrier(kHz)	Max. dBm
		400	-23
		600	-26
		1,200	-27
		1,800	--30
		DCS1800, PCS1900	
		Offset from carrier(kHz)	Max. dBm
		400	-23
		600	-26
		1,200	-27
		1,800	-30

3. TECHNICAL BRIEF

Baseband circuit

3.1. KF600 Functional Block diagram.

The functional component arrangement is mentioned below diagram.

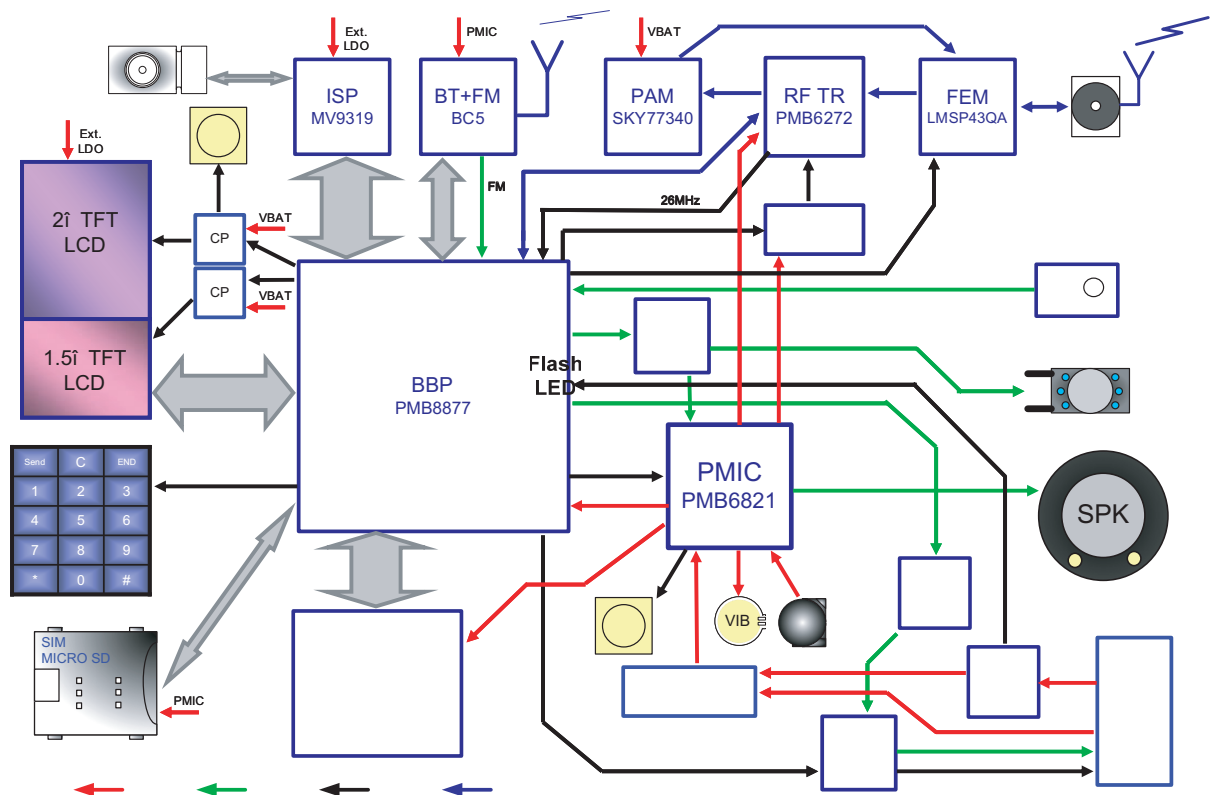


Figure 2 KF600 Functional block diagram

3. TECHNICAL BRIEF

3.2. Baseband Processor (BBP) Introduction

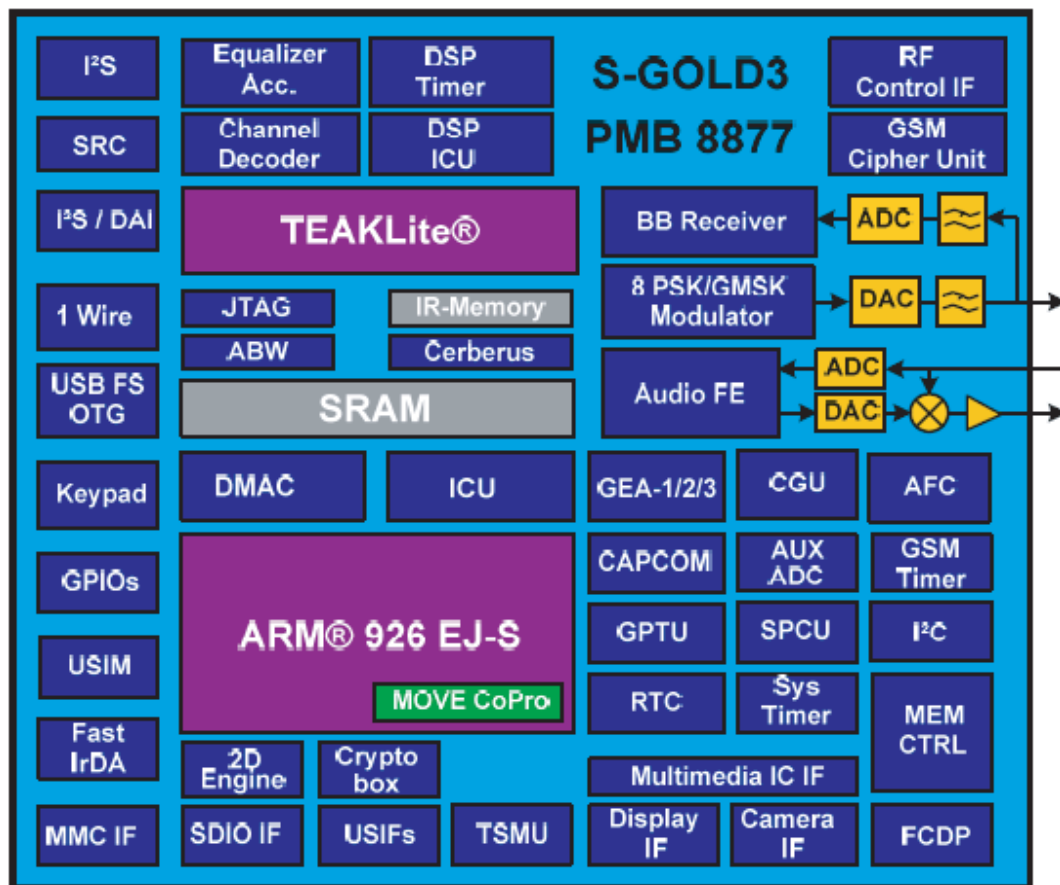


Figure 3 Top level block diagram of the S-GOLD3™ (PMB8877)

3.2.1. General Description

S-GOLD3™ is a GSM/EDGE single chip mixed signal Baseband IC containing all analog and digital functionality of a cellular radio. Additionally S-GOLD3™ Provides multimedia extensions such as camera, software MIDI, MP3 sound. It is designed as a single chip solution, integrating the digital and mixed signal portions of the base band in 0.09um, 1.2V technology.

The chip will fully support the FR, EFR, HR and AMR-NB vocoding.

S-GOLD3™ support multi-slot operation modes HSCSD (up to class 10), GPRS for high speed data application (up to class 12) and EGPRS (up to class 12) without additional external hardware.

3.2.2. Block Description

- Processing core
 - ARM926EJ-S 32 bit processor core for controller functions. The ARM926EJ-S includes an MMU, and the Jazelle Java extension for Java acceleration.
 - TEAKLite DSP core
- ARM-Memory
 - 32k Byte Boot ROM on the AHB
 - 96k Byte SRAM on the AHB, flexibly usable as program or data RAM
 - 16k Byte Cache for Program (internal)
 - 8k Byte tightly coupled memory for Program(internal)
 - 8k Byte Cache for Data(internal)
 - 8k Byte tightly coupled memory for Data(internal)
- DSP-Memory
 - 104K x 16bit Program ROM
 - 8k x 16bit Program RAM
 - 60k x 16bit Data ROM
 - 37k x 16bit Data RAM
 - Incremental Redundancy(IR) Memory of 35904 words of 16bit
- Shared Memory Block
 - 1.5K x 32bit Shared RAM(dual ported) between controller system and TEAKLite.
- Controller Bus system
 - The processor cores and their peripherals are connected by powerful buses. Multi-layer AHB for connecting the ARM and the other master capable building blocks with the internal and external memories and with the peripheral buses.
- Clock system
 - The clock system allows widely independent selection of frequencies for the essential parts of the S-GOLD3. Thus power consumption and performance can be optimized for each application.
- Functional Hardware block
 - CPU and DSP Timers
 - MOVE coprocessor performing motion estimation for video encoding algorithms (H.263, MPEG-4)
 - Programmable PLL with additional phase shifters for system clock generation
 - GSM Timer Module that off-loads the CPU from radio channel timing
 - GMSK / 8-PSK Modulator according to GSM-standard 05.04 (5/2000)
 - GMSK Modulator: gauss-filter with $B \cdot T = 0.3$
 - EDGE Modulator: 8PSK-modulation with linearized GMSK-Pulse-Filter
 - Hardware accelerators for equalizer and channel decoding.
 - Incremental Redundancy memory for EDGE class 12 support
 - A5/1, A5/2, A5/3 Cipher unit
 - GEA1, GEA2, GEA3 Cipher Unit to support GPRS data transmission

3. TECHNICAL BRIEF

- Advanced static and dynamic power management features including TDMA-Frame synchronous low power mode and enhanced CPU modes(idle and sleep modes)
- Pulse Number Modulation output for Automatic Frequency Correction(AFC)
- Serial RF Control interface: support of direct conversion RF
- A Universal Serial Interface(USIF) enabling asynchronous (UART) or synchronous (SPI) serial data transmission
- 3 USIF with autobaud detection, hardware flow control and integrated
- A dedicated Fast IrDA Controller supporting IrDA's SIR, MIR and FIR standards (up to 4Mbps)
- I2C-bus interface (e.g. connection to S/M power)
- A fast display interface supporting serial and parallel interconnection
- An ITU-R BT.656 compatible Camera interface.
- Programmable clock output for a camera
- An multimedia/Secure Digital Card Interface (MMC/SD: SDIO capable)

3.2.3. External Devices connected to memory interface

Table 1. Memory interface

Device	Name	Maker	Remark
FLASH	K5E1G12ACA-D075	Samsung	Synchronous / A synchronous
DDR	K5E1G12ACA-D075	Samsung	Synchronous 133MHz
LCD	IM200DST2A	LGIT	8bit access 2 times transmission
Melody IC	Not Used	S/W	Infineon Software CODEC

3.2.4. RF Interface (T_OUT)

S-Gold3 uses this interface to control RF IC and Peripherals. 13 signals are provided switch on/off RF ICs Periodically each TDMA frame.

Table 2. RF Interface Spec.

T_OUT		
Resource	Interconnection	Description
T_OUT0	TXON_PA	PAM Power on
T_OUT1	Other function	-
T_OUT2	PA_BAND	TX RF band select
T_OUT3	ANT_SW1	FEM control
T_OUT4	ANT_SW2	FEM control
T_OUT5	ANT_SW3	FEM control
T_OUT6	MODE	PAM Mode select

3.2.5. USART Interface

KF600 have three USIF Drivers as follow :

- USIF1: Hardware Flow Control / SW upgrade / Calibration
- USIF2: Not used Rx, Tx and CTS, RTS use BT Interface
- USIF3: BT Interface

Table 3. USIF Interface Spec.

USIF1		
Resource	Name	Remark
USART0_TXD	TXD	Transmit Data
USART0_RXD	RXD	Receive Data
USART0_CTS	USB_DP	
USART0_RTS	USB_DM	
USIF2		
USART1_TXD	NC	NC
USART1_RXD	NC	NC
USART1_CTS	BT_CTS	
USART1_RTS	BT_RTS.	
USIF3		
USIF3_TXD	BT_TX	BT Transmit tx
USIF3_RXD	BT_RX	BT Receive rx

3.2.6. ADC channel

BBP ADC block is composed of 7 external ADC channel. This block operates charging process and other related process by reading battery voltage and other analog values.

Table 4. S-Gold3 ADC channel usage

ADC channel		
Resource	Interconnection	Description
M0	BAT_ID	Battery temperature measure
M1	RF_TEMP	RF block temperature measure
M2	REMOTE_ADC	Remote Control
M3	JACK_TYPE	Accessory type detect
M4	N.C	
M5	N.C	
M6	N.C	
M7	H/W VERSION	S-Gold2 H/W version detect
M8	VSUPPLY	Battery supply voltage measure
M9	I_MONITOR	Current consumption measure
M10	N.C	

3. TECHNICAL BRIEF

3.2.7. GPIO map

Over a hundred allowable resources, KF600 is using as follows except dedicated to SIM and Memory. KF600 GPIO(General Purpose Input/Output) Map, describing application, I/O state, and enable level, is shown in below table

Table 5 S-Gold3 GPIO pin Map

Port Function KEY MATRIX	Net Name	Description
KP_IN0	KP_IN(0)	
KP_IN1	KP_IN(1)	
KP_IN2	KP_IN(2)	
KP_IN3	KP_IN(3)	
KP_IN4	KP_IN(4)	
KP_IN5	KP_IN(5)	
KP_OUT5	KP_OUT(5)	
KP_OUT0	KP_OUT(0)	
KP_OUT1	KP_OUT(1)	
KP_OUT2	KP_OUT(2)	
KP_OUT3	KP_OUT(3)	
USIF1		
USIF1_RXD	RXD	UART, RS232 Data
USIF1_TXD	TXD	UART, RS232 Data
USIF1_RTS_N	USB_DP	USB Data
USIF1_CTS_N	USB_DM	USB Data
USIF2		
USIF2_RXD	Not used	
USIF2_TXD	Not used	
USIF2_RTS_N	BT_RTS	Bluetooth RTS
USIF2_CTS_N	BT_CTS	Bluetooth CTS
USIF3		
USIF3_RXD	BT_RXD	Bluetooth RX
USIF3_TXD	BT_TXD	Bluetooth TX

3. TECHNICAL BRIEF

CAMERA I/F		
CIF_D0	CIF_D(0)	Camera DATA[0]
CIF_D1	CIF_D(1)	Camera DATA[1]
CIF_D2	CIF_D(2)	Camera DATA[2]
CIF_D3	CIF_D(3)	Camera DATA[3]
CIF_D4	CIF_D(4)	Camera DATA[4]
CIF_D5	CIF_D(5)	Camera DATA[5]
CIF_D6	CIF_D(6)	Camera DATA[6]
CIF_D7	CIF_D(7)	Camera DATA[7]
CIF_PCLK	CIF_PCLK	Camera pixel clock
CIF_HSYNC	CIF_HS	Camera H sync
CIF_VSYNC	CIF_VS	Camera V sync
CLKOUT	CIF_MCLK	Camera main clock
CIF_PD	CIF_PD	Camera power down(active high)
CIF_RESET	CIF_RESET	Camera reset
LCD I/F		
DIF_D0	DIF_D(0)	LCD data[0]
DIF_D1	DIF_D(1)	LCD data[1]
DIF_D2	DIF_D(2)	LCD data[2]
DIF_D3	DIF_D(3)	LCD data[3]
DIF_D4	DIF_D(4)	LCD data[4]
DIF_D5	DIF_D(5)	LCD data[5]
DIF_D6	DIF_D(6)	LCD data[6]
DIF_D7	DIF_D(7)	LCD data[7]
DIF_D8	DIF_D(8)	LCD data[8]
DIF_CS1	DIF_MAIN_CS	MAIN LCD chip select
DIF_CS2	DIF_SUB_CS	SUB LCD chip select
DIF_CD	DIF_CD	Command Data switch
DIF_WR	DIF_WR	LCD Write
EINT7	HOOK_DETECT	Ear-Mic hook detection
DIF_RESET1	DIF_RESET	LCD Reset
GPIO_108	CAM_LDO_EN	For CAM Core 1.8V, 2.8V LDO

3. TECHNICAL BRIEF

I2C		
I2C_SCL		SCL For FM/BT/Amp/Camera
I2C_SDA	SDA	For FM/BT/Amp/Camera
PM_INT (EINT)	PM_INT	
SIM I/F		
CC_IO		SIM_IO SIM CARD I/O
CC_CLK	SIM_CLK	SIM CARD CLOCK
CC_RST	SIM_RST	SIM CARD RESET
I2S2		
I2S2_CLK0		Not used
GPIO_102	_WP	Not used
I2S2_RX		Not used
I2S2_TX		Not used
I2S2_WA0		Not used
GPIO_103		Not used
External Memory		
MMCI_CMD	TF_CMD	T-flash
MMCI_DAT[0]	TF_DAT0	T-flash
MMCI_CLK	TF_CLK	T-flash
GPIO_109	USB_EOC	USB End of charging detect (High: EOC, Low: charging)
IrDA		
GPIO_110	RPWRON	Remote power on detect (High: Remote, Low: Normal)
GPIO_109	SPK_RCV_SEL	Audio pass select(high: Speaker, Low: Receiver)
I2S1		
I2S1_CLK0	I2S1_CLK	For Bluetooth
GPTU0_0	FLASH_EN	For Camera Flash LED
I2S1_RX	I2S1_RX	For Bluetooth
I2S1_TX	I2S1_TX	For Bluetooth
I2S1_WA0	I2S1_WA	For Bluetooth
External Memory		
MMCI_DAT[1]	TF_DAT1	T-flash
MMCI_DAT[2]	TF_DAT2	T-flash
MMCI_DAT[3]	TF_DAT3	T-flash

3. TECHNICAL BRIEF

Audio I/F		
EPN1	RCV_N	For Receiver
EPP1	RCV_P	For Receiver
EPPA1	BBP_SND_L	For Speaker
EPREF		Reference
EPPA2	BBP_SND_R	For Speaker
MICN1	MIC1_N	For Mic
MICP1	MIC1_P	For Mic
MICN2	MIC2_N	For Headset Mic
MICP2	MIC2_P	For Headset Mic
VMICP	VMICP	Power for MIC
VMICN	VMICN	Power for MIC
ADC		
M0	BAT_ID	Battery temperature measure
M1	RF_TEMP	RF block temperature measure
M2	REMOTE_ADC	Remote Control
M3	JACK_TYPE	Accessory type detect
M7	H/W VERSION	S-Gold2 H/W version detect
M8	VSUPPLY	Battery supply voltage measure
M9	I_MONITOR	Current consumption measure
M10	N.C	
Reference		
VREF		
IREF		
JTAG I/F		
TDO	TDO	JTAG
TDI	TDI	JTAG
TMS	TMS	JTAG
TCK	TCK	JTAG
TRST_n	_TRST	JTAG
RTCK	RTCK	JTAG

3. TECHNICAL BRIEF

ETM I/F		
TRIG_IN	TRIG_IN	ETM (Embedded Trace Macro Cell)
MON1	MON1	ETM
MON2	MON2	ETM
TRACESYNC	TRACESYNC	ETM
TRACECLK	TRACECLK	ETM
PIPESTAT[2]	PIPESTAT2	ETM
PIPESTAT[1]	PIPESTAT1	ETM
PIPESTAT[0]	PIPESTAT0	ETM
TRACEPKT[0]	TRACEPKT(0)	ETM
TRACEPKT[1]	TRACEPKT(1)	ETM
TRACEPKT[2]	TRACEPKT(2)	ETM
TRACEPKT[3]	TRACEPKT(3)	ETM
TRACEPKT[4]	TRACEPKT(4)	ETM
TRACEPKT[5]	TRACEPKT(5)	ETM
TRACEPKT[6]	TRACEPKT(6)	ETM
TRACEPKT[7]	TRACEPKT(7)	ETM
Memory		
MEM_AD[0]	D(0)	
MEM_AD[1]	D(1)	
MEM_AD[2]	D(2)	
MEM_AD[3]	D(3)	
MEM_AD[4]	D(4)	
MEM_AD[5]	D(5)	
MEM_AD[6]	D(6)	
MEM_AD[7]	D(7)	
MEM_AD[8]	D(8)	
MEM_AD[9]	D(9)	
MEM_AD[10]	D(10)	
MEM_AD[11]	D(11)	
MEM_AD[12]	D(12)	
MEM_AD[13]	D(13)	
MEM_AD[14]	D(14)	
MEM_AD[15]	D(15)	
MEM_WR_n	_WR	

3. TECHNICAL BRIEF

MEM_RD_n	_RD	
MEM_BC0_n	_BC0	
MEM_BC1_n	_BC1	
MEM_A[0]	A(0)	
MEM_A[1]	A(1)	
MEM_A[2]	A(2)	
MEM_A[3]	A(3)	
MEM_A[4]	A(4)	
MEM_A[5]	A(5)	
MEM_A[6]	A(6)	
MEM_A[7]	A(7)	
MEM_A[8]	A(8)	
MEM_A[9]	A(9)	
MEM_A[10]	A(10)	
MEM_A[11]	A(11)	
MEM_A[12]	A(12)	
MEM_A[13]	A(13)	
MEM_A[14]	A(14)	
MEM_A[15]	A(15)	
MEM_A[16]	A(16)	
MEM_A[17]	A(17)	
MEM_A[18]	A(18)	
MEM_A[19]	A(19)	
MEM_A[20]	A(20)	
MEM_A[21]	A(21)	
MEM_A[22]	A(22)	
MEM_A[23]	A(23)	
MEM_A[24]	A(24)	
MEM_CS0_n	_FLASH1_CS	INTEL NOR (64MB)
MEM_CS1_n	_RAM_CS	INTEL SDRAM (64MB)
MEM_CS2_n	_FLASH2_CS	Not used
MEM_CS3_n	_CS3	Not used
MEM_ADV_n	_ADV	
MEM_RAS_n	_RAS	
MEM_CAS_n	_CAS	

3. TECHNICAL BRIEF

MEM_WAIT_n	_WAIT	
MEM_SDCLKO	SDCLKO	For Burst mode
MEM_SDCLKI	SDCLKI	For Burst mode
MEM_BFCLKO	BFCLKO	For Burst mode
MEM_BFCLKI	BFCLKI	For Burst mode
MEM_CKE	CKE	
Memory		
FCDP_RBn	FCDP	
TDMA I/F		
T_OUT0	TXON_PA	PAM
GPIO_44	VIB_EN	
T_OUT2	PA_BAND	PAM
T_OUT3	ANT_SW1	
T_OUT4	ANT_SW2	
T_OUT5	ANT_SW3	
T_OUT6	MODE	PAM
KP_OUT4	KP_OUT(4)	
EINT7	JACK_DETECT	
CC1CC3IO	LCD_BACKLIGHT	LCD Backlight control
GPIO_53	LCD_ID	LCD ID check
GPIO_54	_FM_RESET	
RF I/F		
RF_STR0	RF_EN	
CC1CC5IO	SLIDE_DETECT	Slide on/off detection
RF_DATA	RF_DA	
RF_CLK	RF_CLK	
System Port		
AFC	AFC	
CLKOUT0 [<=26MHz]	Not used	

3. TECHNICAL BRIEF

F26M	26MHZ_MCLK	26M Main Clock
F32K		to 32k crystal
OSC32K		to 32k crystal
RESET_n	_RESET	
TRIG_OUT	TRIG_OUT	
RTC_OUT	RTC_OUT	
VCXO_EN	VCXO_EN	
DSP		
GPIO_61	_BT_RESET	
GPIO_62	SLED_BACKLIGHT	Navi key LED Backlight Control
GPIO_63	_SIM_EN	

3. TECHNICAL BRIEF

3.3. Power management IC

3.3.1. General Description

SM-POWER is a highly integrated Power and Battery Management IC for mobile handsets. It has been specially designed for usage with S-Gold3. Although optimized for usage with the Infineon S-GOLD baseband device it is suitable for the S-GOLDlite and the E-GOLD+ baseband devices as well. It also supports the cellular RF devices like SMARTi-DC, SMARTi-DC+, SMARTi-SD and the Bluemoon Single, Infineon's single chip solution for Bluetooth. If used with S-GOLD3 it provides all power supply functions (except for the RF PA) for a complete advanced GSM Edge smart phone minimizing external device count.

Block Description

- Highly efficient step-down converter for main digital baseband supply including Core, DSP and memory interface (External Bus Unit).
- Support of S-GOLD standby power-down concept
- Low-drop-out (LDO) regulators for Flash and mobile RAM memory devices
- Voltage independent switching of two SIM cards
- LDO regulators for baseband I/O supply
- LDO regulator for analog mixed-signal section of S-GOLD
- Low-noise LDO regulators for RF devices
- Supply for Bluemoon Single, Infineon's single chip solution for Bluetooth
- Audio amplifier 8 Ohms for handsfree operation and ringing
- Charge Control for charging Li-Ion/Polymer batteries under software control
- Pre-charge current generator with selectable current level
- RTC regulator with ultra-low quiescent current
- USB interface support for peripheral and mini-host mode
- Backlight LEDs driver with current selection and PWM dimming function
- Two single LED driver outputs for signaling
- Vibrator driver with adjustable voltage
- Fully controllable by software via I2C - Bus
- Temperature and battery voltage sensors
- Interrupt channels for peripherals
- System debug mode
- VQFN 48 package with heat sink and non-protruding leads
- Compatible with the Infineon E-GOLD+ V2 and V3

SM-POWER is a further step on the successful E-Power product line with enhanced and optimized functionality. SM-POWER features a baseband supply concept with a DC/DC step-down converter cascaded by two linear regulators

- SM-POWER's DC/DC converter makes up to 40 % reduction of battery current for smart phone functions (e.g. organizer functions, games, MP3 decoding) possible.
- SDBB has high efficiency up to 95% and also a power save mode.
- Memory Interface is directly supported by the SDBB
- SDBB can also act as main supply voltage for E-GOLD+ or S-GOLDlite baseband devices.
- For S-GOLD two linear regulators for DSP and Core are cascaded after the SDBB.

SM-POWER supports the standby power-down concept of S-GOLD by temporarily switching off the linear regulator for the DSP during mobile standby whenever this subsystem is not used. In this phase the ARM controller and most peripherals including parts of the on-chip SRAM are kept powered-up with power being supplied by the other linear regulator.

SM-POWER includes a fully differential audio amplifier able to drive loads down to a nominal value of 8 Ohm for usage in hands-free phones and for ringing

- 450 mW maximum output power
- adjustable gain
- mute switch SM-POWER also integrates a charging function for Li-Ion, Li-Polymer batteries
- click and pop -protection SM-POWER also integrates a charging function for Li-Ion, Li-Polymer batteries
- Precharge current source with two current levels
- Constant current / constant voltage charging with 3 different termination voltages
- Programmable charge current limitation for use with different batteries
- Freely programable pulse charging to reduce the thermal power dissipation in the constant voltage charging phase
- Top-off charge current sensing SM-POWER completes the USB interface of S-GOLD
- Regulated voltage for S-GOLD USB interface including reverse current and overvoltage protection
- Switch to supply USB pull-up resistor
- Mini-host pull down resistor functionality
- Charge pump with internal switching capacitor for USB host VBUS supply voltage SM-POWER fully supports LED and Vibra Motor functionality
- no external components needed
- driver for backlight LEDs adjustable in steps up to 140mA and with soft turn on and off by PWM dimming
- two driver outputs for single LEDs for precharge indication and signaling with i.e. change of colour
- driver for Vibra Motor with adjustable voltages, soft startup / shutdown and current limitation

3. TECHNICAL BRIEF

SM-POWER offers several control functions

- Power-on Reset Generator with logic state machine
- I2C bus interface
- I2C bus configurable mode control logic with ON (push-button or RTC), VCXOEN and LRF3EN (wake-up by Bluetooth) inputs
- Programmable interrupt channels to handle peripherals like SIM, MMC and USB
- Monitoring of charging functions
- Undervoltage Shut-Down
- Errorflags (volatile or non-volatile) from many power-supply functions and thermal sensor in order to debug system
- Overtemperature Shut-Down
- Overtemperature Warning
- Support of S-GOLD standby power-down concept
- Support of S-GOLD Power-Down Pad Tristate Function

Table 6. LDO Output Table of SM-Power

LDO	Net name	Output Voltage	Output Current	Usage
SD1	1V35_Core	1.35V	600mA	Core & for LDO
SD2	1V8_SD	1.8V	300mA	Memory
VAUX	2V9_VAF	2.9V	100mA	Cam Auto Focus
VIO	2V62_VIO	2.62V	100mA	Peripherals
VSIM	2V9_SIM	2.9V	70mA	SIM card
VMME	2V8_VMME	2.9V	150mA	u-SD
VUMTS	2V85_AMP	2.85V	110mA	Headset AMP
VUSB	VUSB	3.1V	40mA	Not used
VLED	VLED	2.9V	10mA	Not used
VAUDIOa	2V5_VAUDA	2.5V	200mA	Stereo headset, Mono earpiece
VAUDIOb	2V5_VAUDB	2.5V	50mA	Analog parts of S-Gold
VRF1	2V85_VRF	2.85V	150mA	2.85 V supply for SMARTi-PM RF transceiver
VRF2	1V5_VRF	1,53V	100mA	1.5 V supply for SMARTi-PM RF transceiver
VRF3	2V65_VBT	2.7V	150mA	Bluetooth
VPLL	1V35_VPLL	1.35V	30mA	S-GOLD3 PLL
VRTC	2V11_RTC	2.11V	4mA	Real Time Clock
VAFC	VAFC	2.65V	5mA	Not used
VVIB	2V8_VLCD	2.8V	140mA	LCD



3. TECHNICAL BRIEF

3.3.2. Charging

SM-POWER provides together with an external p-channel FET Siliconix Si3455 an external AC-adapter a complete charge control function for charging of Li-Ion or Li-Ion-Polymer batteries. Either a 1-cell Li-Ion or Li-Ion-Polymer battery with 4.1, 4.2 or 4.4 Volts may be used.

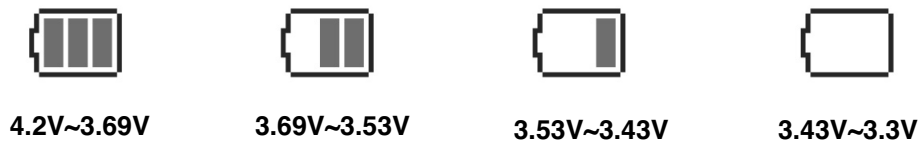


Figure 7 Battery Block Indication

1. Charging method: CC-CV
2. Charger detect voltage: 4.0 V
3. Charging time: 2h 30m
4. Charging current: 600 mA
5. CV voltage: 4.2 V
6. Cutoff current: 110 mA
7. Full charge indication current (icon stop current): 110 mA
8. Recharge voltage: 4.16 V
9. Low battery alarm
 - a. Idle : 3.43 V ~ 3.3 V
 - b. Dedicated : 3.53 V ~ 3.3 V
10. Low battery alarm interval
 - a. Idle: 3 min
 - b. Dedicated: 1 min
11. Switch-off voltage: 3.3 V
12. Charging temperature adc range
 - a. ~ -5°C: low charging voltage operation (3.6 V ~ 3.9 V) .
 - b. -5°C ~ 50°C: standard charging (up to 4.2 V)
 - c. 50°C~: low charging voltage operation (3.6V ~ 3.9V)

3.4. Power ON/OFF

KF600 Power State: Defined 3cases as follow

- ▶ Power-ON: Power key detect (SM-Power's ON port)
- ▶ Power-ON-charging: Charger detect.

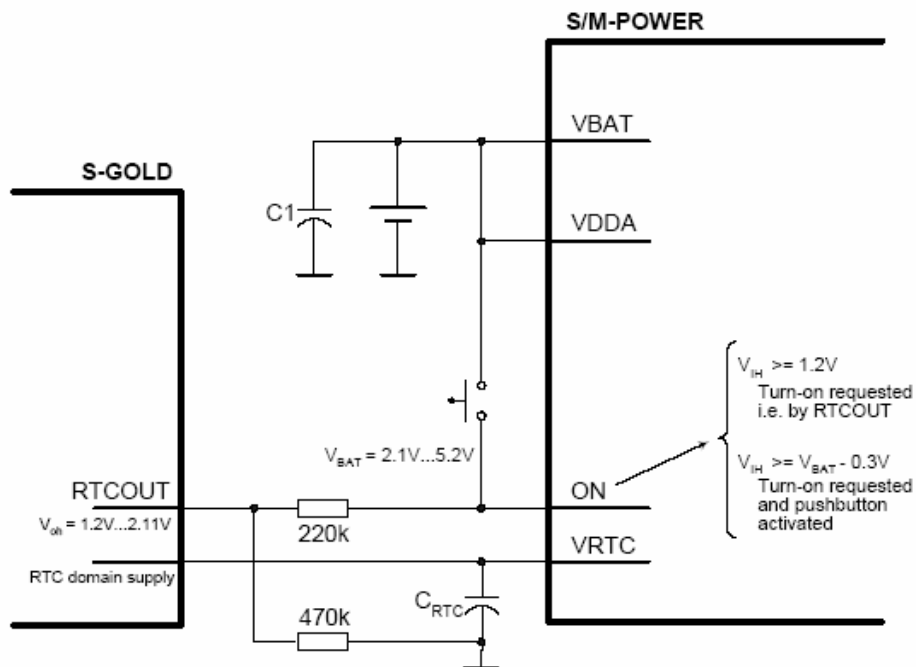


Figure 8 Power on application.

Input ON is a power-on input for SM-POWER with 2 active high levels (see Figure 8). It might be triggered by a push button or by the RTCOUT output of the S-GOLD device as well. To detect if the push-button is pressed during system operation the logical level at pin ON or its change (if Bit 1 EION in INTCTRL2 is asserted) is recorded in bit LON of the ISF register. If the high level of voltage at pin ON does not reach V_{IHdet} ($V_{bat}-0.8 \sim V_{bat}-0.3$) the above-mentioned bit won't be set.

To support Remote power on function for factory mass production, applied an analog switch as following figure. As monitoring the RPWRON and Key matrix KP_OUT(2) & KP_IN(0), KF600 system recognize whether remote power on or End-key pushed

3. TECHNICAL BRIEF

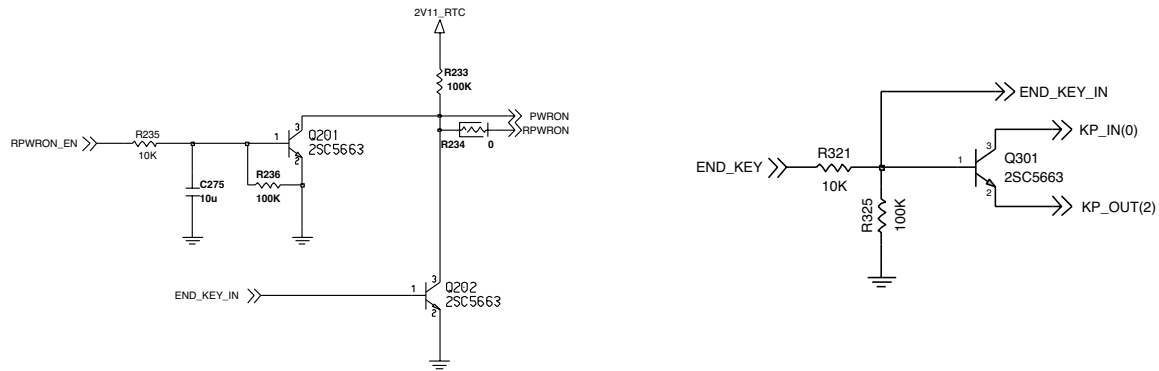


Figure 9 Remote power on and End-key power on circuit

3.5. SIM & uSD interface

KF600 supports 1.8V & 2.9V plug in SIM, SIM interface scheme is shown in (Figure 10).

SIM_IO, SIM_CLK, SIM_RST ports are used to communicate with BBP(S-Gold3) and the SIM power supply enabled by PMIC.

SIM Interface

SIM_CLK: SIM card reference clock

SIM_RST: SIM card Async /sync reset

SIM_IO: SIM card bidirectional reset

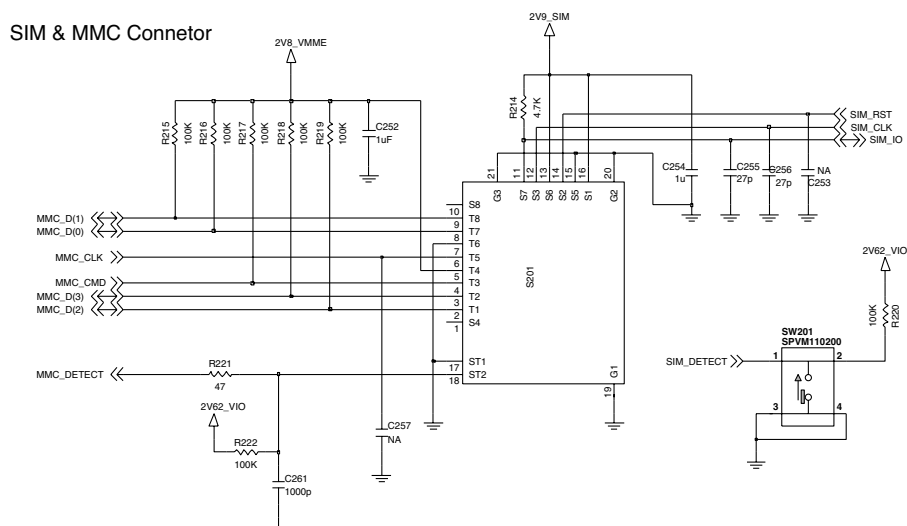
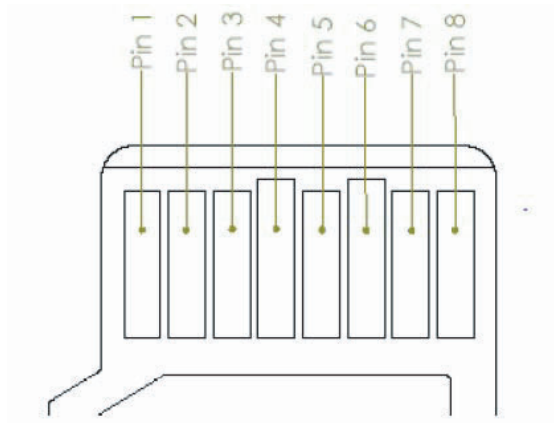


Figure 10 SIM & Micro SD Circuit

3. TECHNICAL BRIEF

The MicroSD Memory Module has eight exposed contacts on one side. The S-Gold2 is connected to the module using a dedicated eight-pin connector



Micro SD Memory Card Detection Scheme

Micro SD memory pad assign.

SD mode			
Pin No.	Name	Type	Description
1	DAT2	I/O	Data bit [2]
2	CD/DAT3	I/O	Data bit [3]
3	CMD	I/O	Command response
4	VDD	Power	Power supply
5	CLK	I	Clock
6	VSS	Ground	Power ground
7	DAT0	I/O	Data bit [0]
8	DAT1	I/O	Data bit [1]

3. TECHNICAL BRIEF

3.6. Memory

1Gbit Flash & 512Mbit DDRAM employed on KF600 with 8 & 16 bit parallel data bus thru ADD(0) ~ ADD(24). The 1Gbit Nand Flash memory with DDRAM stacked device family offers multiple high-performance solutions.

1G NAND +512M DDR SDRAM

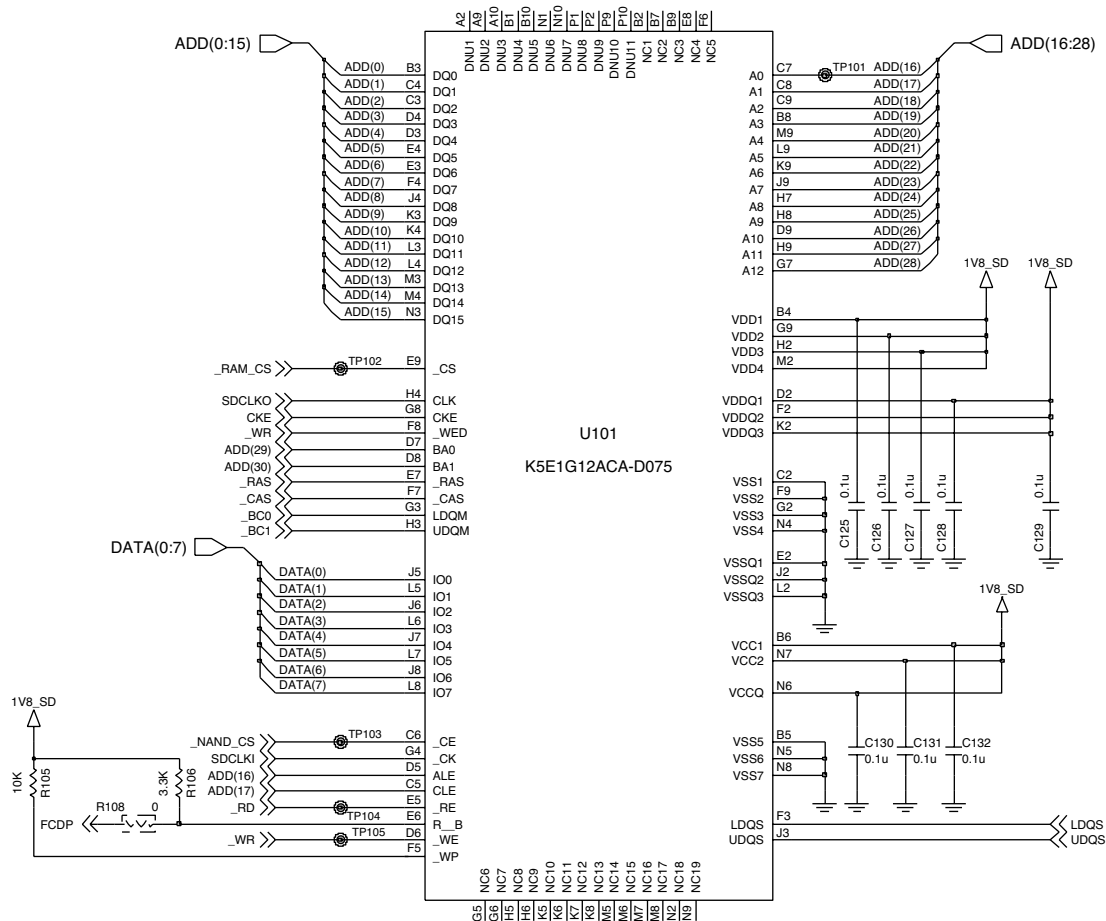


Figure 11 Flash memory & DDR RAM MCP circuit diagram

3.7. LCD Display

LCD module include:

- Main LCD: 2.0" ± 240 x 320 QVGA, 260K color TFT
- Sub LCD: 1.49" ± 240x176, TFT
- Backlight: 4 piece of white LED
- Backlight: 3 piece of white LED

LCD FPC Interface Spec:

Table 7. LCD FPC Interface Spec.

Pin No.	Pin Name	I/O	Description
1	GND		Ground
2	DIF_SUB_CS	O	SUB Chip Select
3	2V8_VLCD		VCC
4	2V8_VLCD		VCC IO
5	GND		Ground
6	GND		Ground
7	GND		Ground
8	GND		Ground
9	GND		Ground
10	GND		Ground
11	GND		Ground
12	D0	I/O	Data Bus (Instruction & Display Data)
13	GND		Ground
14	DIF_RESET	O	Reset
15	DIF_MAIN_CS	O	Main Chip Select
16	VSYNC	O	Frame Head Pulse Signal
17	MLED		Power Supply for Main LED
18	MLED1		Ground for LED
19	MLED2		Ground for LED
20	MLED3		Ground for LED
21	MLED4		Ground for LED
22	GND		Ground
23	2V11_RTC		Backup Battery
24	GND		Ground
25	TS_YP	I	Touch Signal
26	TS_YM	I	Touch Signal
27	GND		Ground
28	GND		Ground

3. TECHNICAL BRIEF

29	TS_XM	I	Touch Signal
30	TS_XP	I	Touch Signal
31	GND		Ground
32	RCV_P	O	Receiver Signal
33	RCV_N	O	Receiver Signal
34	GND		Ground
35	2V8_VLCD		Interface Mode Select
36	2V8_VLCD		Interface Mode Select
37	2V8_VLCD		Interface Mode Select
38	LCD_ID	I	LCD Detect
39	SLED		Power Supply for Main LED
40	SLED1		Ground for LED
41	SLED2		Ground for LED
42	SLED3		Ground for LED
43	GND		Ground
44	D8	I/O	Data Bus (Instruction & Display Data)
45	D7	I/O	Data Bus (Instruction & Display Data)
46	D6	I/O	Data Bus (Instruction & Display Data)
47	D5	I/O	Data Bus (Instruction & Display Data)
48	D4	I/O	Data Bus (Instruction & Display Data)
49	D3	I/O	Data Bus (Instruction & Display Data)
50	D2	I/O	Data Bus (Instruction & Display Data)
51	D1	I/O	Data Bus (Instruction & Display Data)
52	DIF_WR	O	Write Strobe
53	DIF_CD	I	Read Strobe
54	GND		Ground

3.8. Keypad Switching & Scanning

The keypad interface is a peripheral which can be used for scanning keypads up to 8 rows (outputs from Port Control Logic) and 8 columns (inputs to PCL). The number of rows and columns depend on settings of the PCL.

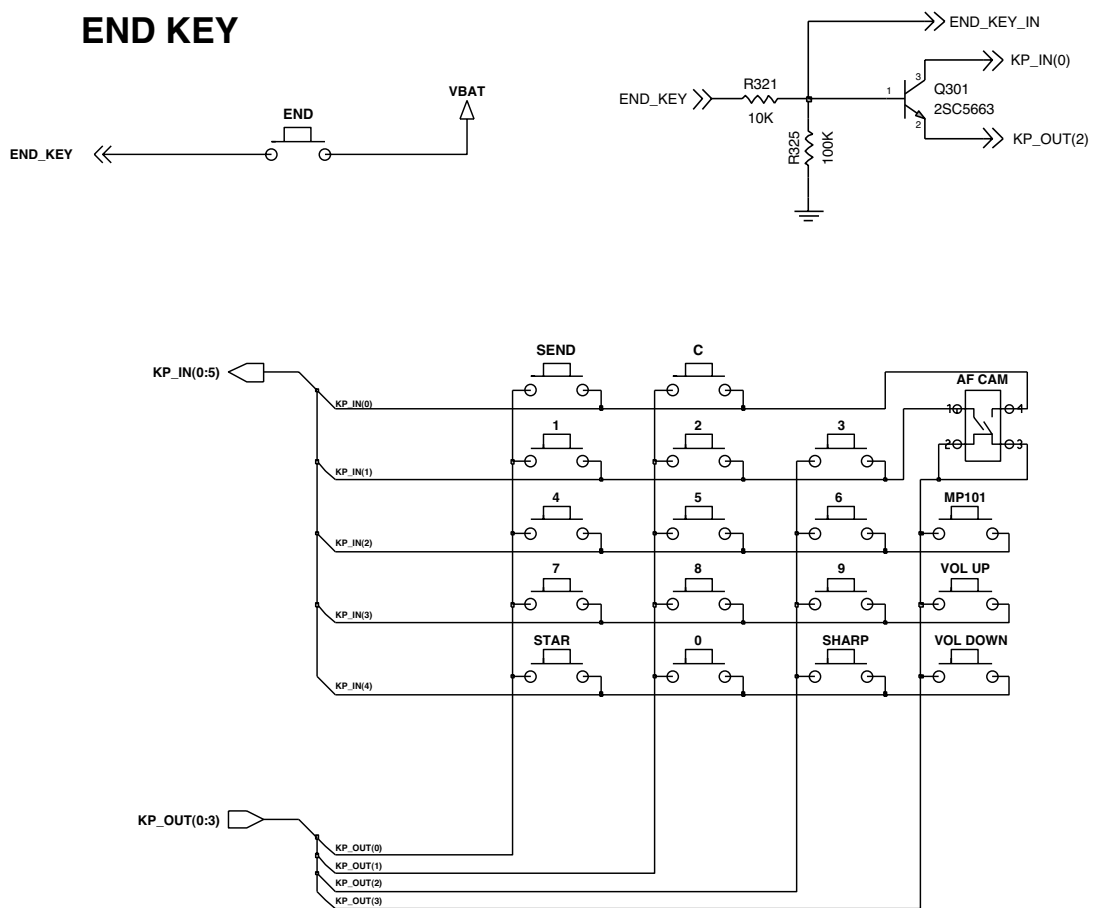


Figure 12 Key pad part key matrix

3.10. LCD back-light illumination

AAT2842 is a dual charge pump designed to support both the white LED backlight and flash applications for systems operating with lithium-ion/polymer batteries. And AAT3151 support 3 white LEDs. The AAT2842 is capable of driving up to three LEDs at a total of 120mA(AAT3151 90mA). The current sinks may be operated individually or in parallel for driving higher current LEDs. To maximize power efficiency, the charge pump operates in 1X, 1.5X, or 2X mode, where the mode of operation is automatically selected by comparing the forward voltage of each LED with the input voltage

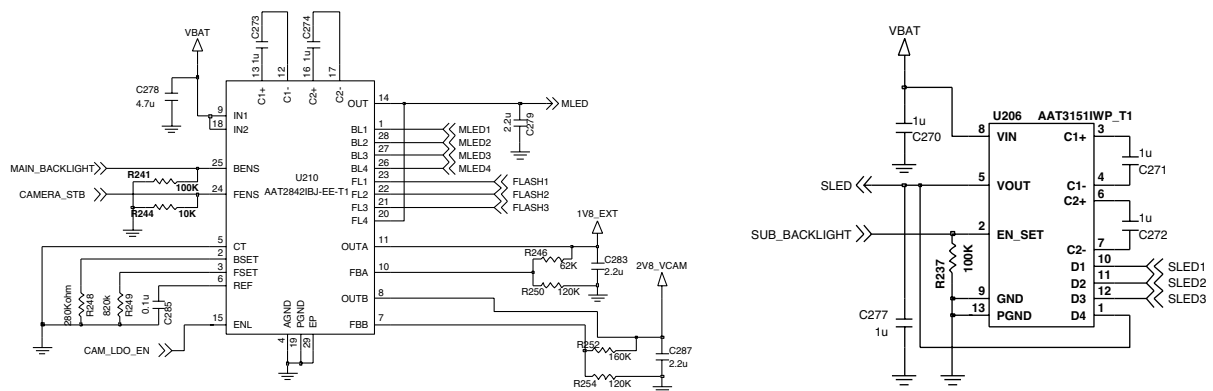


Figure 15 LCD Back light unit and Flash LED charge pump IC

The interface relies on the number of rising edges of the EN/SET pin to address and load the registers. S2Cwire latches data or address after the EN/SET pin has been held high for time T_{LAT} . The interface records rising edges of the EN/SET pin and decodes them into 16 different states, as indicated in table

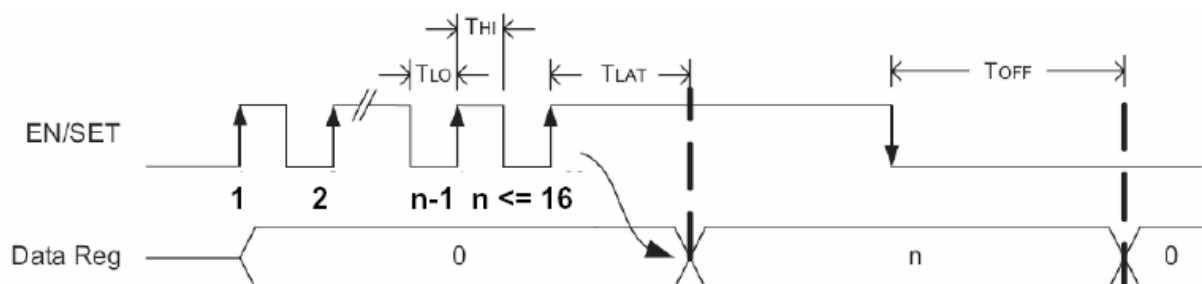


Figure 16 EN/SET port control method

3. TECHNICAL BRIEF

3.11. Battery current consumption monitor

KF600 use a current monitoring function to calculate the battery capacity and the remaining time, as monitoring current flow from the battery thru 47mohm resistor.

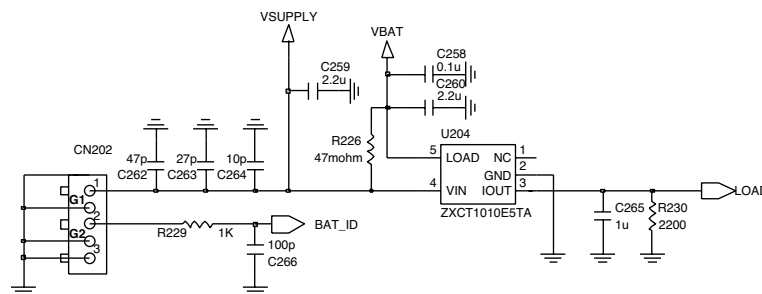


Figure 17 Current monitor circuit

3.12. JTAG & ETM interface connector

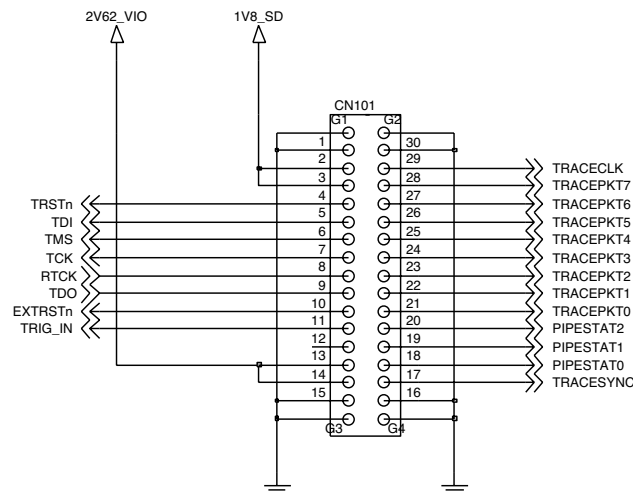


Figure 18 JTAG & ETM(Embedded Trace Module) interface connector

In case of KF600 mass production, the JTAG & ETM interface connector will not be mount on board. That is only for developing and software debugging purpose.(It will not be mounted on mass production PCB)

3.13. ISP(Image Signal Processor)

MV9319 is high-end Image Signal Processor (ISP) supporting image sensors up to 5 mega pixels. MV9319 can be applied to various image sensor modules and camera applications. MV9319 is especially suitable for camera phones or smart-phones with built-in MCP (Mobile Camera Processor) or MMP (Mobile Multimedia Processor). Its powerful image processing functions such as edge enhancement, color correction, advance interpolation, Auto White Balancing significantly increases the quality of sensor image. Moreover, real time JPEG output mode in MV9319 makes Back-end processor easier to capture and process JPEG image. MV9319 also supports various serial interfaces to communicate with external device flexibly. MV9319 is the best solution to create high image quality for camera phones demanding high performance.

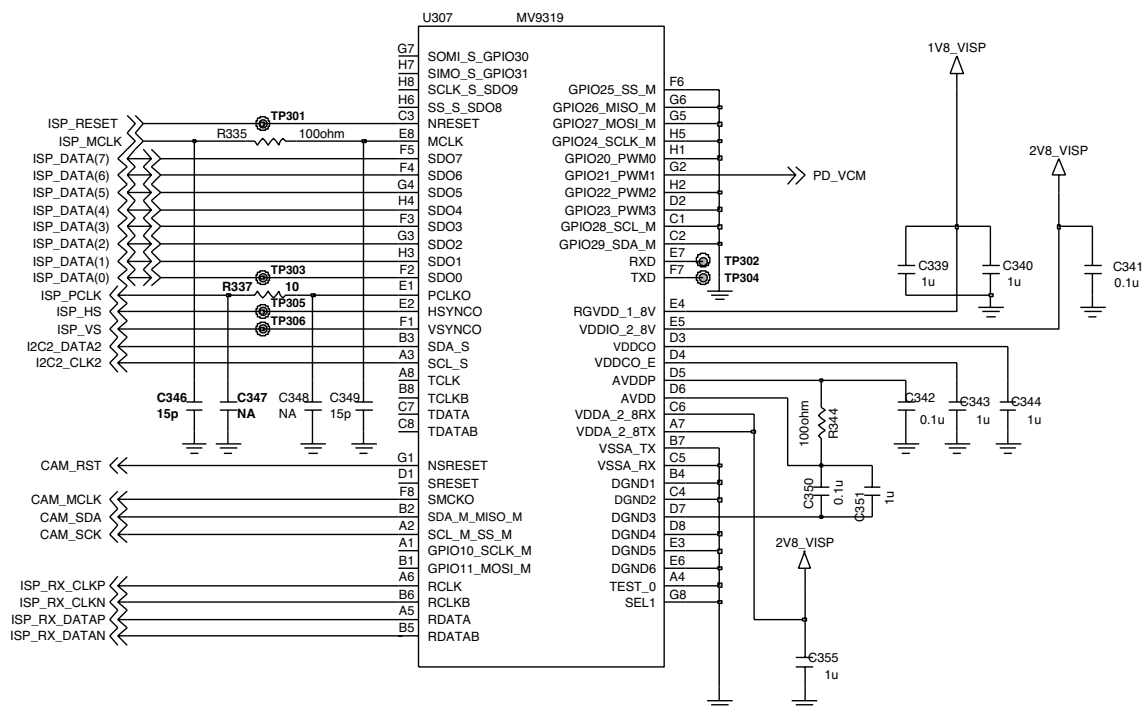


Figure 15. ISP Circuit

3. TECHNICAL BRIEF

3.14. Audio

KF600 Audio signal flow diagram as following diagram.

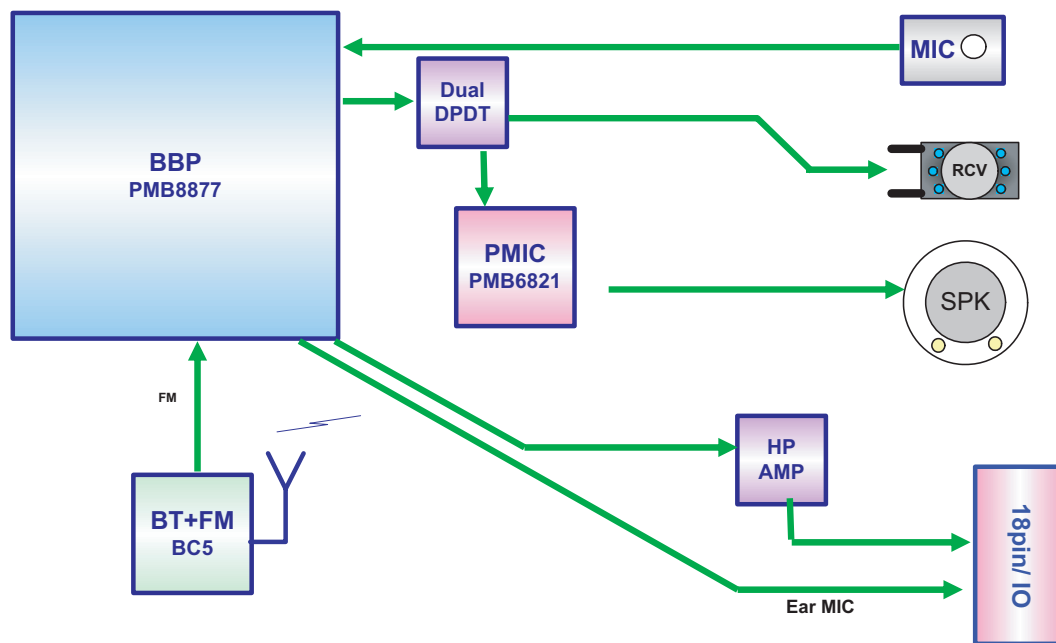


Figure 19 Audio signal flow diagram

3.14.1. Audio amplifier

We use PMB6821 internal amplifier.

- Battery driven 450mW differential audio amplifier for driving 8 ohm loudspeaker
- Two gain stages including overdrive for ringing tones
- >80dB PSRR (4kHz)

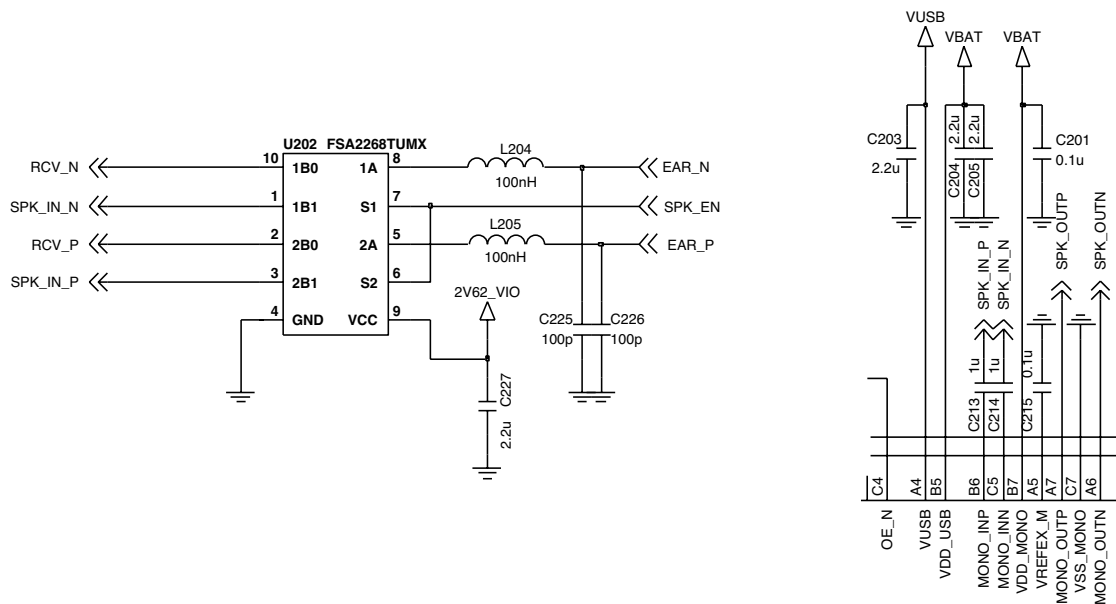


Figure 20 Audio amplifier PMIC

3.14.2. Microphone circuit

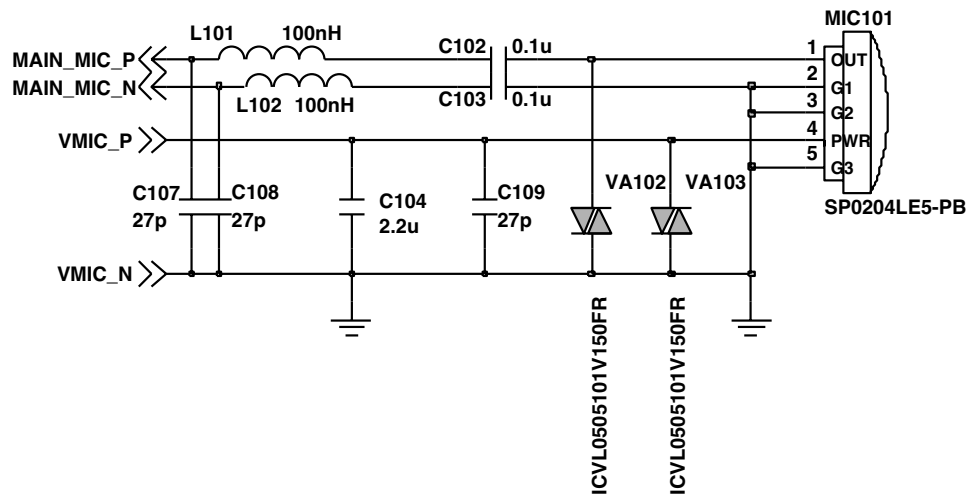


Figure 22 Microphone circuit

3.15. Multi port switch

Multi port switch has employed to decrease MMI(Multi Media Interface) connector's pin number. USB, USART, and Headset are connected via these multi port switches. Each pin is defined by the status of JACK_DETECT and VBUS_USB pin. Refer to the Table 8

Table 8 Multi port switch truth table

	JACK_DETECT='L'	JACK_DETECT='H'
Pin6	Remote Int	USB_DP
Pin7	Remote ADC	USB_DM

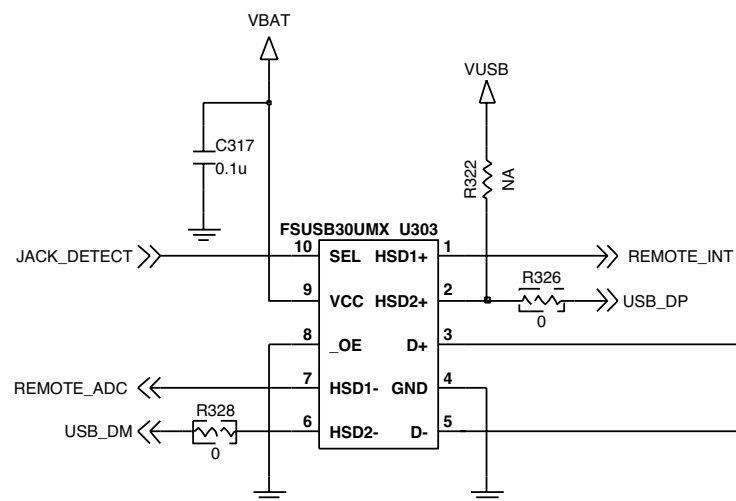


Figure 23 Multi port switch REMOTE KEY/ USB

3. TECHNICAL BRIEF

3.16. charging circuit

ISL6299 accepts two power inputs, normally one from a USB (Universal Serial Bus) port and the other from a desktop cradle. The ISL6299A features 28V and 7V maximum voltages for the cradle and the USB inputs respectively. Due to the 28V rating for the cradle input, low-cost, large output tolerance adapters can be used safely.

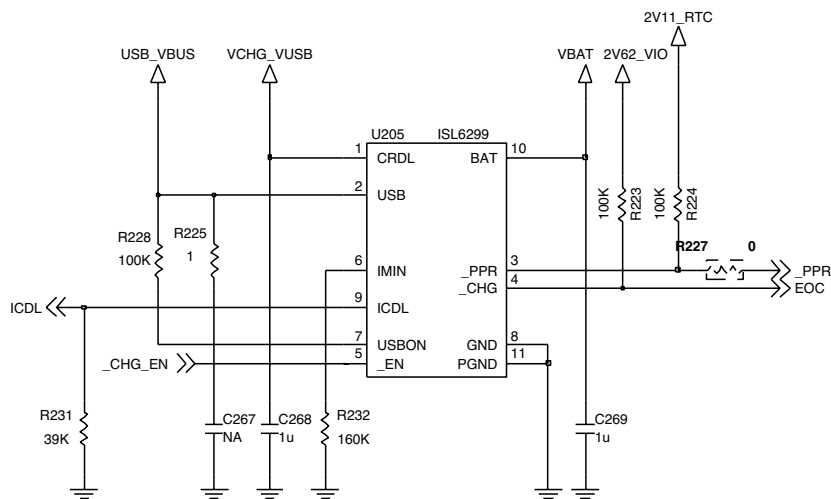


Figure 22. Charging Circuit Diagram

3.17. FM radio & BLUETOOTH

• FM radio

Simultaneous operation with Bluetooth

- Support of US/Europe (87.5 to 108 MHz) and Japanese (76 to 90 MHz) FM band
- Wide dynamic range AGC
- Soft mute and stereo blend
- Adjustment-free stereo decoder and AFC
- Autonomous search tuning function (up/down) with programmability (threshold setting)
- RDS demodulator
- Audio output available over Bluetooth audio interface or dedicated audio output
- Control of FM via Bluetooth HCI or I2C
- Adaptive filter to suppress narrow band interference in the FM channel

• Bluetooth

General Features

The BlueCore 5-FM BGA is a single chip radio and baseband IC for Bluetooth 2.4 GHz systems including enhanced data rates (EDR) to 3Mbps/s. It includes an integrated FM receiver with stereo audio output stage and an RDS demodulator.

With the on-chip CSR Bluetooth software stack, it provides a fully compliant Bluetooth system to v2.0+EDR of the specification for data and voice communications.

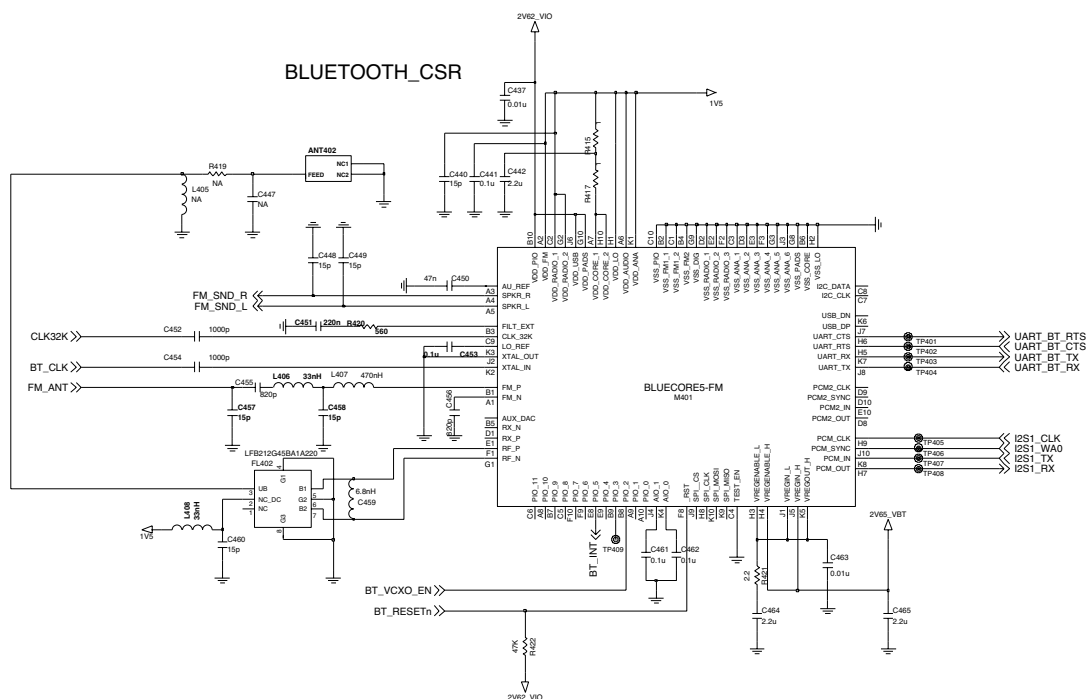


Figure 23. Bluetooth / FM Radio Circuit Diagram

3. TECHNICAL BRIEF

Bluetooth Radio

- Common TX/RX terminal simplifies external matching, eliminates external antenna switch
- No external trimming is required In production
- Bluetooth v2.0 + EDR Specification compliant

Bluetooth Transmitter

- +6 dBm RF Transmit power with level control from on-chip 6-bit DAC over a dynamic range > 30dB
- Class 2 and Class 3 support without the need for an external power amplifier or TX/RX switch.

Bluetooth Receiver

- Integrated channel filters
- Digital demodulator for improved sensitivity and co-channel rejection
- Real time digitized RSSI available on HCI interface
- Fast AGC for enhanced dynamic range
- Channel classification for AFH

Synthesiser

- Fully integrated synthesizer requires no external VCO varactor diode, resonator or loop filter
- Compatible with crystals between 7.5 and 40MHz(in multiples of 250KHz) or an external clock

Audio

- Single-ended stereo analogue output
- 16-bit 48 kHz digital audio bit stream output

Baseband and Software

- Internal 48Kbyte RAM, allows full speed data transfer, mixed voice and data, and full piconet operation, including all medium rate packet types
- Logic for forward error correction, header error control, access code correlation. CRC, demodulation, encryption bit stream generation, whitening and transmit pulse shaping. Supports all Bluetooth v 2.0 + EDR features incl. ESCO and AFH
- Transcoders for A-law, u-law and linear voice from host and A-law, u-law and CVSD voice over air

Physical Interfaces

- Synchronous serial interface up to 4Mbits/s for system debugging
- UART interface with programmable baud rate up to 4Mbits/s with an optional bypass mode
- USB v1.1 interface
- I2C slave for FM
- Two audio PCM interfaces (input and output)
- Analogue stereo (output only)

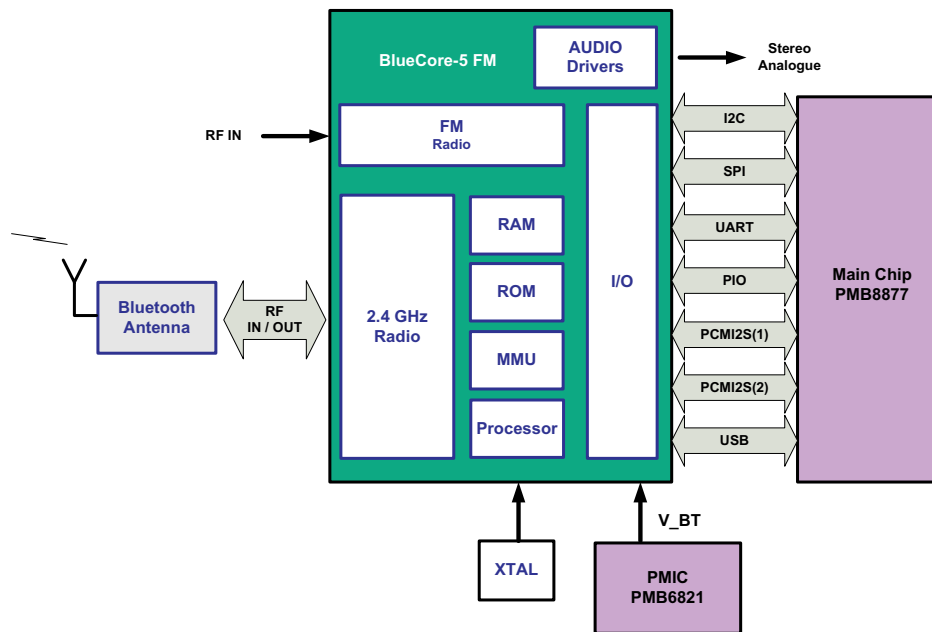


Figure 23. Bluetooth / FM Radio Block Diagram

3.17.1. General Features

- Single Chip Bluetooth device for cellular applications integrating radio, baseband and memory
- Fabricated in advanced low power 0.13 μ m CMOS technology
- Very low component count (6 external components)
- Ultra low power design
 - Peak current 40mA for basic data rate
 - Peak current 45mA for enhanced data rate
 - Bluetooth low power mode typ. 25 μ A
- Multiple input clock signals supported (10-40MHz)
- Supply from external voltage regulator 1.8V..3.6V 1)
- Autonomous power down scenarios of Bluetooth and cellular system supported
- Packages:
 - P-VQFN-48 package
 - P-WFLGA-56 package
- Temperature range from -40°C up to 85°C
- Boundary scan for interface lines via JTAG

3.17.2. Micro-Controller-Section

- ARM7TDMI-STM ARM® Processor for protocol and application software
- Timers + Watchdog + Interrupt Module

3.17.3. Micro-Controller Memory

3. TECHNICAL BRIEF

3.18. 18pin Multi Media Interface connector

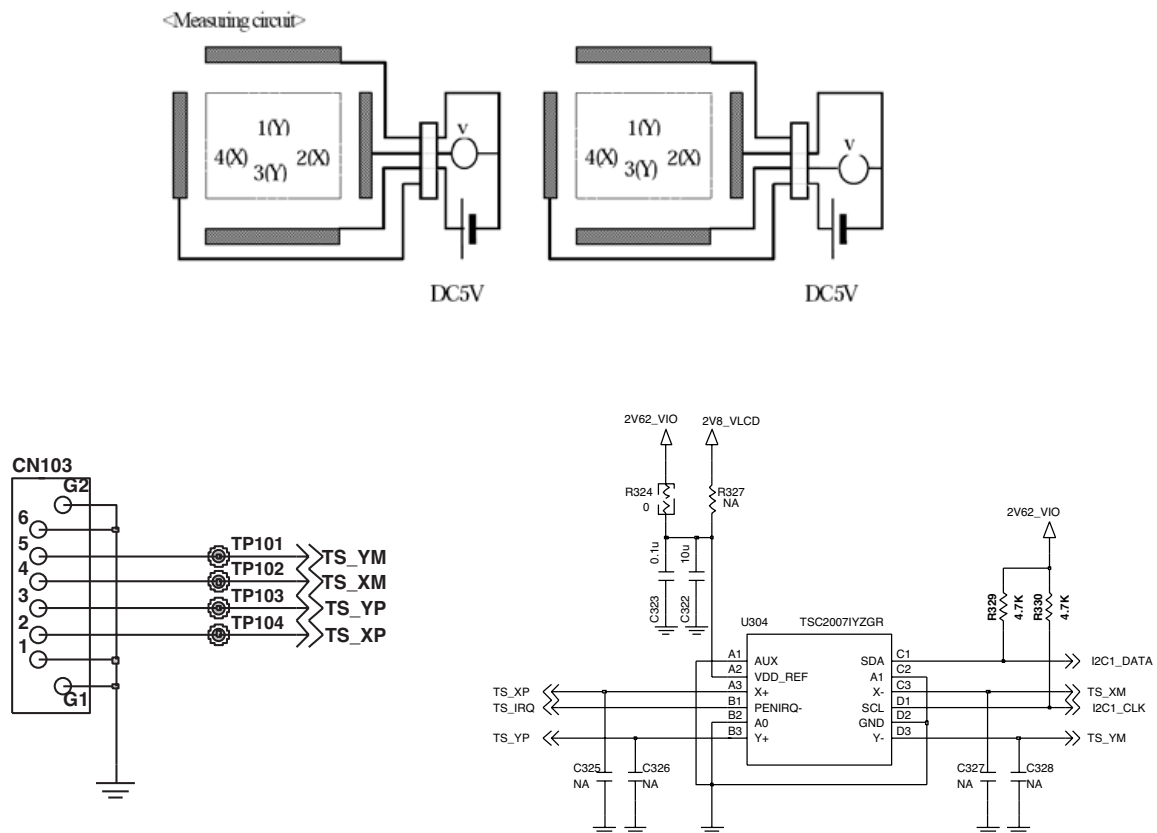
Table 11 Multi media interface pin assign

KE850 MMI		
	Pin Function	Description
1	FM_ANT	FM radio antenna / Audio ground
2	HS_MIC	Headset microphone signal
3	JACK_TYPE	Accessory type detect
4	HS_OUT_L	Headset left sound
5	HS_OUT_R	Headset Right sound
6	USB_DP / REMOTE_INT	USB/ Remote control interrupt
7	USB_DM / REMOTE_ADC	USB/ Remote control Key ADC
8	JACK_DETECT	Headset detect (active low)
9	VSUPPLY	Battery voltage
10	VSUPPLY	Battery voltage
11	RPWRON	Remote power on (active high. 2.8V)
12	VCHG	Charger voltage
13	VCHG	Charger voltage
14	DSR	N.C.
15	VBUS_USB	USB VBUS
16	TX	UART TX data
17	RX	UART RX data
18	GND	Power GND



3. TECHNICAL BRIEF

3.19. Touchpad Interface



GND	Ground pin.
VDD/REF	Supply voltage and external reference input.
PENIRQ-	Data available interrupt output, a delayed (process delay) pen touch detect. Pin polarity with active low.
A1	Address input bit1.
SCL	Serial Clock. This pin is normally an input but is acting as an output when device issue a general call.
X+	X+ channel input.
SDA	Serial data I/O.
Y+	Y+ channel input.
A0	Address input bit0.
Y-	Y- channel input.
X-	X- channel input.

RF circuit

*RF Block Diagram

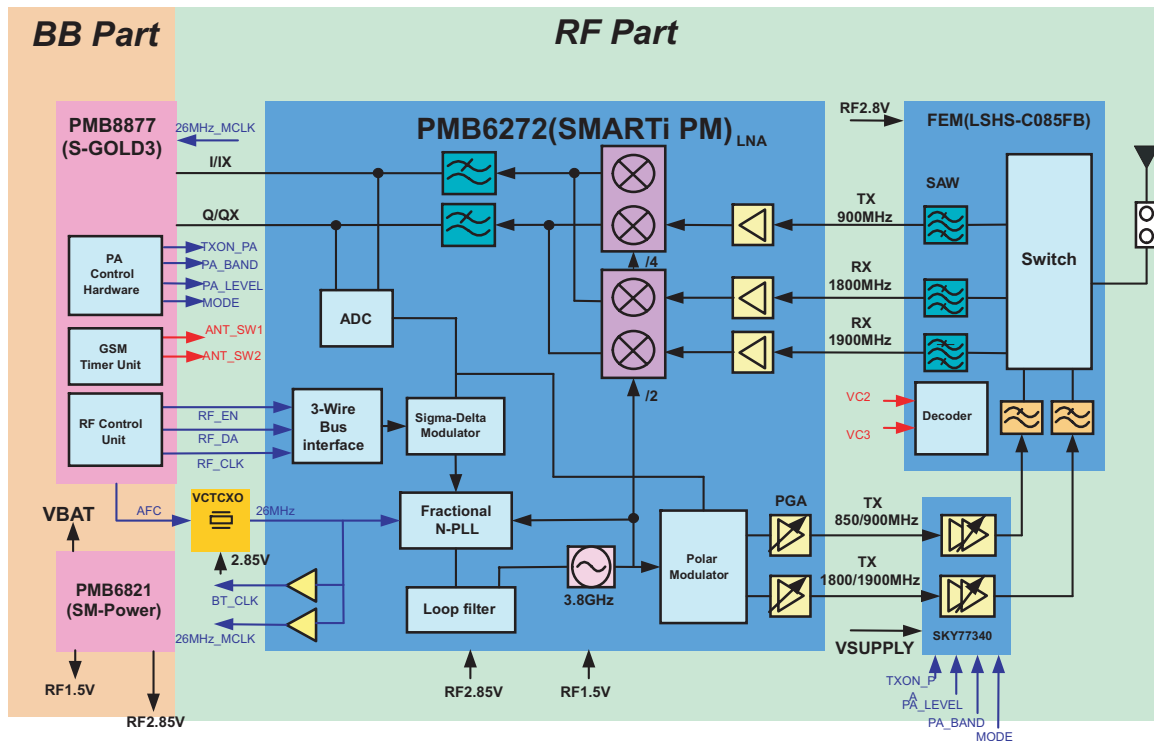


Figure 34 KF600 RF part Block Diagram

3.20. General Description

The RF transceiver (PMB 6272 SMARTi-PM) is an integrated single chip, quad-band transceiver for GSM850/GSM900/GSM1800/GSM1900 designed for voice and data transfer applications. The transceiver provides an analog I/Q baseband interface and consists of a direct conversion receiver and a quad-band polar transmitter for GSM and EDGE with integrated PGA functionality. Further on a completely integrated SD-synthesizer with HSCSD and GPRS/EDGE capability, a digitally controlled reference oscillator with three outputs, a fully integrated quad-band RF oscillator and a three wire bus interface with all necessary control circuits complete the transceiver.



3.21. Receiver part

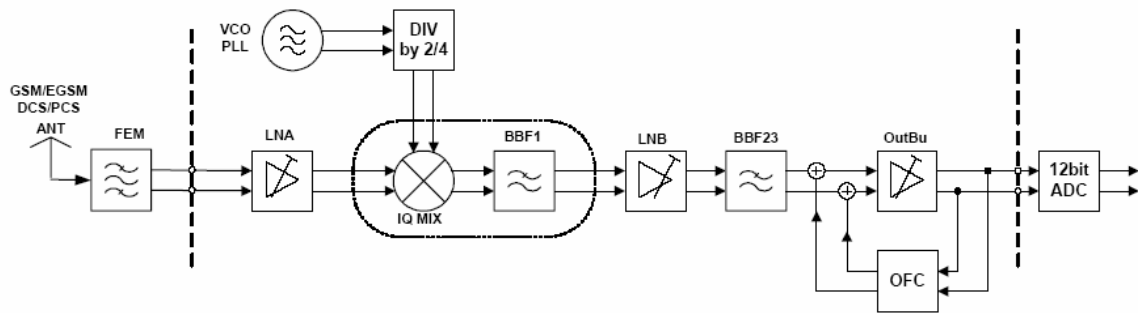


Figure 37 Receiver part block diagram

The constant gain direct conversion receiver contains all active circuits for a complete receiver chain for GSM/GPRS/EDGE (see Figure 39). The GSM850/900/DCS1800/PCS1900 LNAs with balanced inputs are fully integrated. No inter-stage filtering is needed. The orthogonal LO signals are generated by a divider-by-four for GSM850/900 band and a divider-by-two for the DCS1800/PCS1900 band. Down conversion to baseband domain is performed by low/high band quadrature direct down conversion mixers.

The baseband chain contains a LNB (low noise buffer), channel filter, output buffer and DC-offset compensation. The 3rd order low pass filter is fully integrated and provides sufficient suppression of blocking signals as well as adjacent channel interferers and avoids anti-aliasing through the baseband ADC. The receive path is fully differential to suppress on-chip interferences. Several gain steps are implemented to cope with the dynamic range of the input signals. Depending on the baseband ADC dynamic range, single-or multiple gain step switching schemes are applicable. Furthermore an automatic DC-offset compensation can be used (depending on the gain setting) to reduce the DC-offset at baseband-output. A programmable gain correction can be applied to correct for front end- and receiver gain tolerances.

3. TECHNICAL BRIEF

3.22. Transmitter part

The GMSK transmitter supports power class 4 for GSM850 and GSM900 as well as power class 1 for DCS1800 and PCS1900. The digital transmitter architecture is based on a very low power fractional-N Sigma-Delta synthesizer without any external components (see Figure39). The analog I/Q modulation data from the baseband is converted to digital, filtered and transformed to polar coordinates. The phase/frequency signal is further on processed by the Sigma-Delta modulation loop. The output of its associated VCO is divided by four or two, respectively, and connected via an output buffer to the appropriate single ended output pin. This configuration ensures minimum noise level. The 8PSK transmitter supports power class E2 for GSM850 and GSM900 as well as for DCS1800 and PCS1900. The digital transmitter architecture is based on a polar modulation architecture, where the analog modulation data (rectangular I/Q coordinates) is converted to digital data stream and is subsequently transformed to polar coordinates by means of a CORDIC algorithm. The resulting amplitude information is fed into a digital multiplier for power ramping and level control. The ready processed amplitude signal is applied to a DAC followed by a low pass filter which reconstructs the analog amplitude information.

The phase signal from the CORDIC is applied to the Sigma-Delta fractional-N modulation loop. The divided output of its associated VCO is fed to a highly linear amplitude modulator, recombining amplitude and phase information. The output of the amplitude modulator is connected to a single ended output RF PGA for digitally setting the wanted transmit power. The PA interface of SMARTi-PM supports direct control of standard dual mode power amplifiers (PA's) which usually have a power control input VAPC and an optional bias

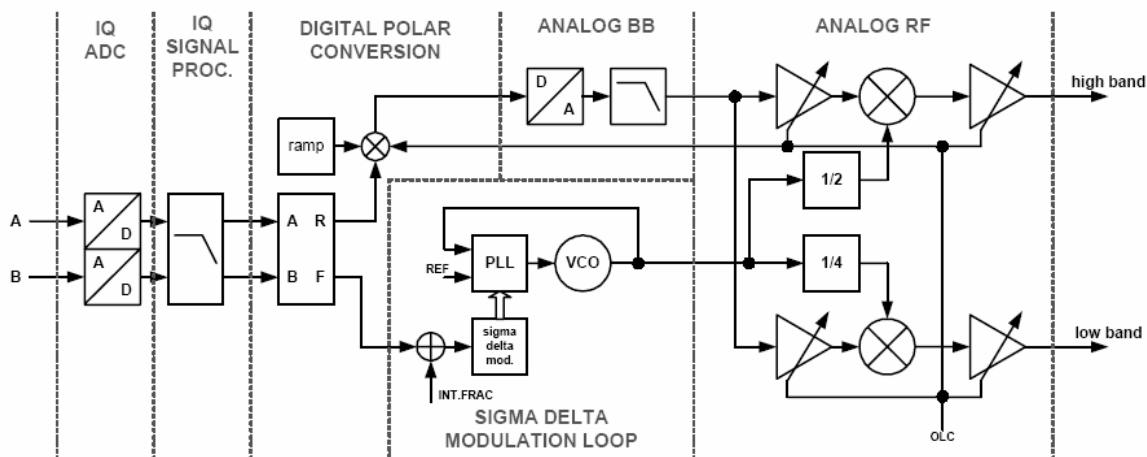


Figure 38 Transmitter part block diagram

control pin VBIAS for efficiency enhancement. In GMSK mode, the PA is in saturated high efficiency mode and is controlled via its VAPC pin directly by the baseband ramping DAC. In this way both up- / down-ramping and output power level are set. In 8PSK mode, the ramping functionality is assured by an on-chip ramping generator, whereas output power is controlled by the PGA's as described above.

3.23. RF synthesizer

The transceiver contains a fractional-N sigma-delta synthesizer for the frequency synthesis in the RX operation mode. For TX operation mode the fractional-N sigma-delta synthesizer is used as Sigma-Delta modulation loop to process the phase/frequency signal. The 26MHz reference signal is provided by the internal crystal oscillator. This frequency serves as comparison frequency of the phase detector and as clock frequency for all digital circuitry. The divider in the feedback path of the synthesizer is carried out as a multi-modulus divider (MMD). The loop filter is fully integrated and the loop bandwidth is about 100 kHz to allow the transfer of the phase modulation. The loop bandwidth is automatically adjusted prior to each slot (OLGA²). To overcome the statistical spread of the loop filter element values an automatic loop filter adjustment (ALFA) is performed before each synthesizer startup. The fully integrated quad-band VCO is designed for the four GSM bands (850, 900, 1800, 1900 MHz) and operates at double or four times transmit or receive frequency. To cover the wide frequency range the VCO is automatically aligned by a binary automatic band selection (BABS) before each synthesizer startup.

3.24. VCTCXO

The VCTCXO (X401) supply 26MHz reference clock and controlled by AFC input to generate a strict system clock. The 26MHz clock is used to Transceiver(U403), Bluetooth chip(U402) and S-Gold2 (U101).

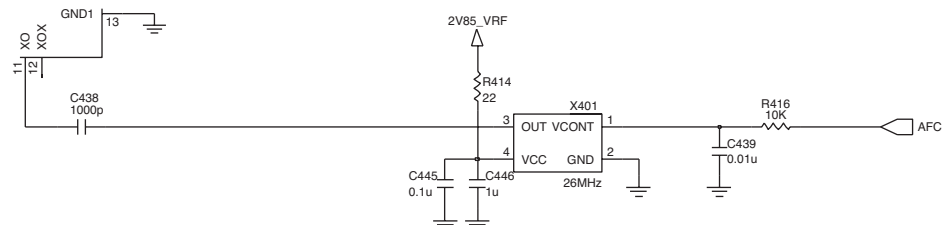


Figure39 VCTCXO Schematic

3. TECHNICAL BRIEF

3.25. Front End Module control

Implemented in the S-Gold3 (FL401) are three outputs which are FE1, FE2 for direct control of front end modules with two logic input pins to select RX and TX mode as well as low and high band operation.

Table 12 FEM Control Logic

MODE	Tx 1GHz	Tx 2GHz	Rx GSM	Rx EGSM	Rx DCS	TX PCS
VDD	ON	ON	ON	ON	ON	ON
VC1	ON	OFF	OFF	OFF	OFF	OFF
VC2	OFF	ON	OFF	OFF	OFF	OFF

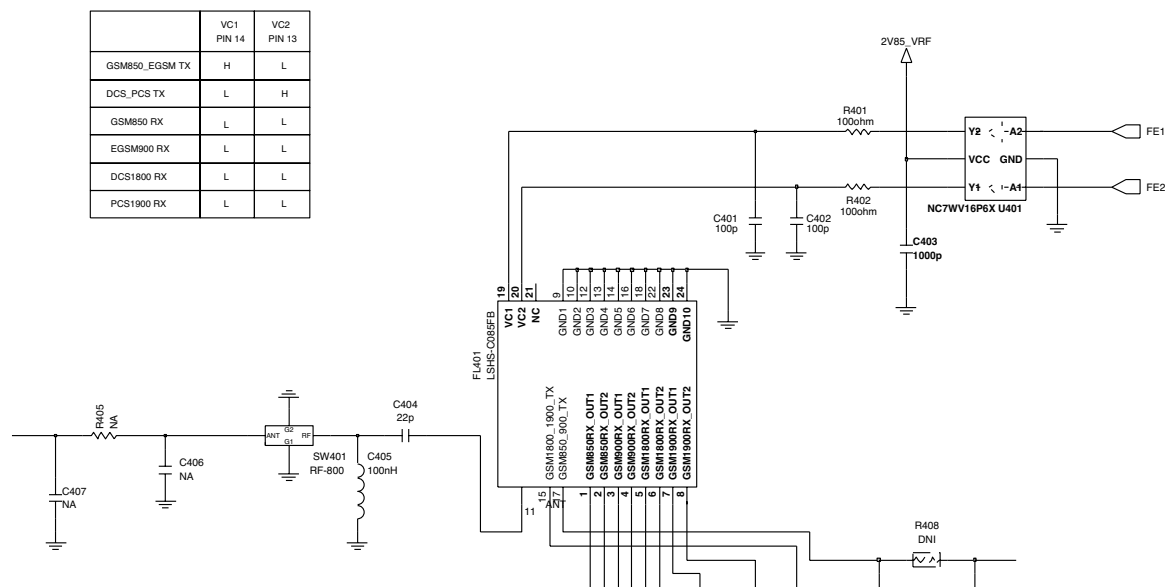


Figure 40 FEM schematic

3.26. Power Amplifier Module

The SKY77340 (U402) designed in a compact form factor for quad-band cellular handsets comprising GSM850/900,DCS1800,PCS1900, supporting GMSK and linear EDGE modulation. The module consists fo a GSM850/900 PA block and a DCS1800/PCS1900 PA block, impedance-matching circuitry for 50 ohms input and output impedances, and a Multi-function Power Amplifier Control(MFC) block. Two separate Heterojunction Bipolar Transistor9HBT) PA blocks are fabricated onto InGaP die. One supports the GSM850.900 bands, the other supports the DCS1800 and PCS1900 bands. Both PA blocks share common power supply pins to distribute current. RF input and output ports are internally matched to 50 ohms to reduce the number of external components.

Table 13 PAM pin description

PIN	Name	Description
1	MODE	GMSK/EDGE Power control mode. L=GMSK, H=EDGE
2	DCS/PCS_IN	RF input(DCS/PCS) DC Blocked
3	BS	Band Select
4	REVD1	Reserved
5	VBATT	DC Supply
6	VRAMP	Analog PA Bias Control(All Bands, EDGE Mode) Analog Output Power Control(All Bands, GMSK Mode)
7	GSM_IN	RF input(EGSM) DC Blocked
9	GSM_OUT	RF Output(EGSM) DC Blocked
10,11	GND	Ground
12	REVD2	Reserved
13,14,15	GND	Ground
16	DCS/PCS_OUT	RF Output(DCS/PCS) DC Blocked
Pad	GND PAD GRID	Ground pad grid is device underside.

3. TECHNICAL BRIEF

3.27. Mode Selection

Table 14 Mode Selection

MODE	VMODE	RF INPUT	VRAMP	TX ENABLE
GSM	Low	Fixed	Vramp control output Power	High
EDGE	High	Ramp Burst Control	Vramp sets PA bias condition, fixed gain PA	High

MODE circuitry selects GMSK modulation (logic 0) or EDGE modulation (logic 1).

VRAMP controls the output power for GMSK modulation and provides bias optimization for EDGE modulation depending on the state of MODE control.

3.28. PAM Schematic

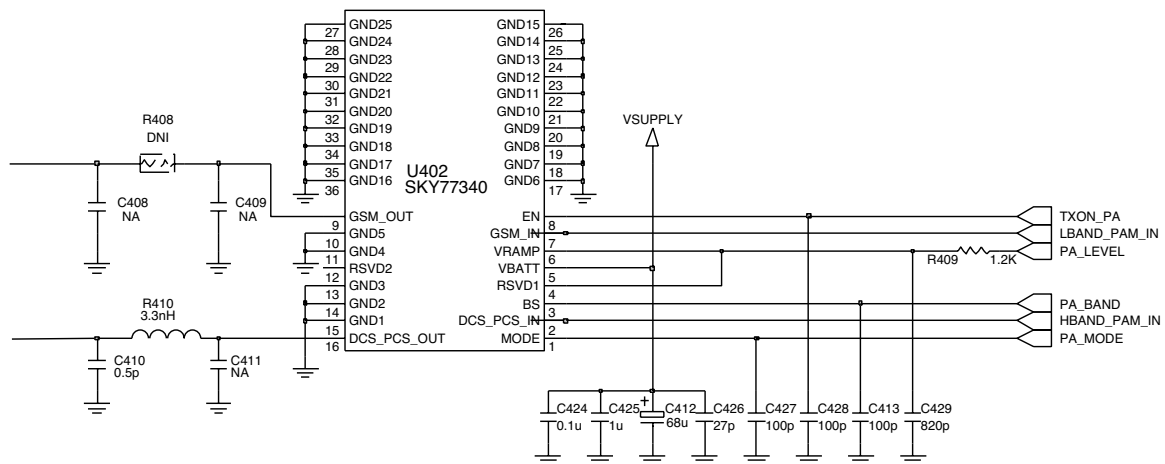
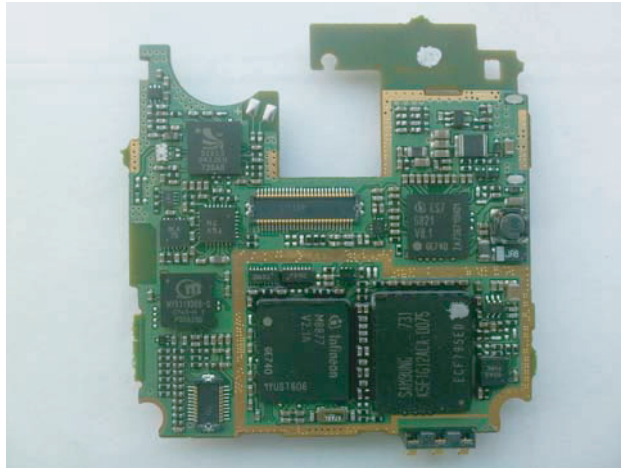


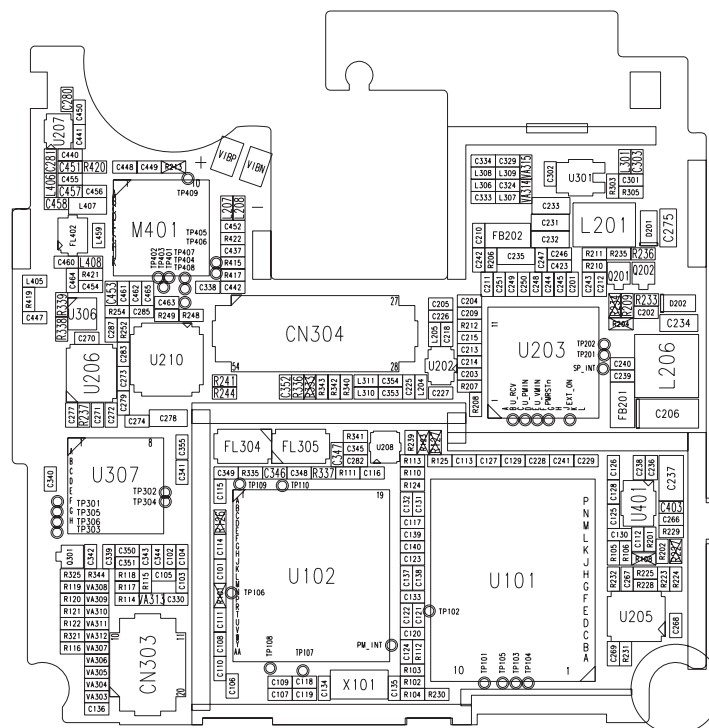
Figure 41 PAM schematic

4. PCB layout

4.1. Main & Sub PCB component placement

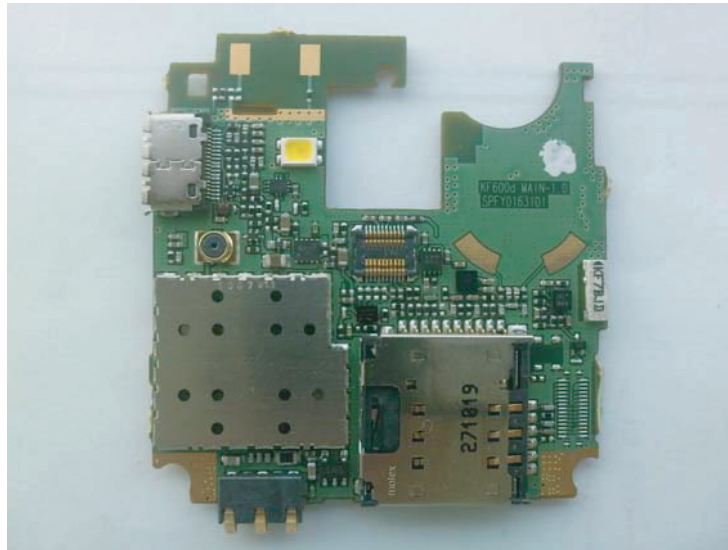


Main PCB Top

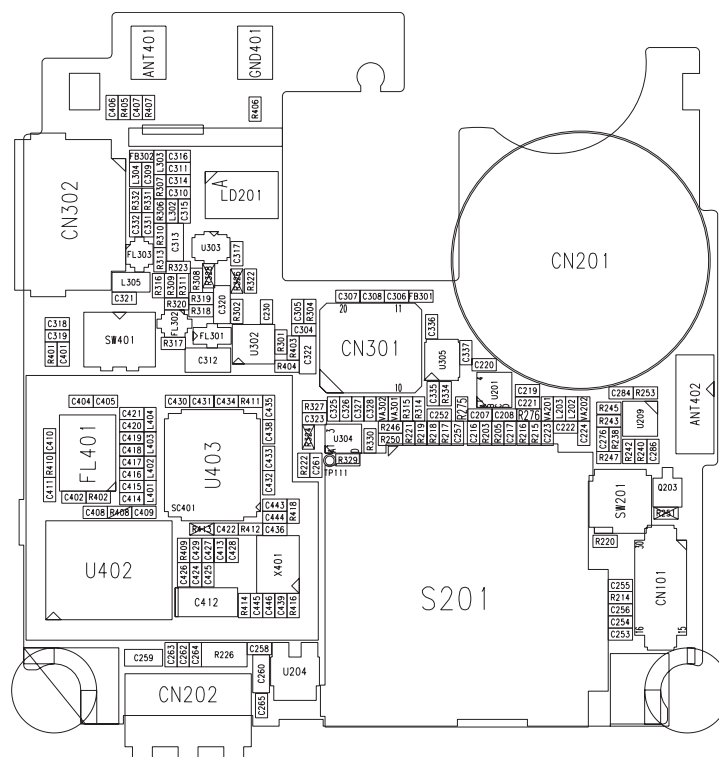


Main PCB Top placement

4. PCB layout

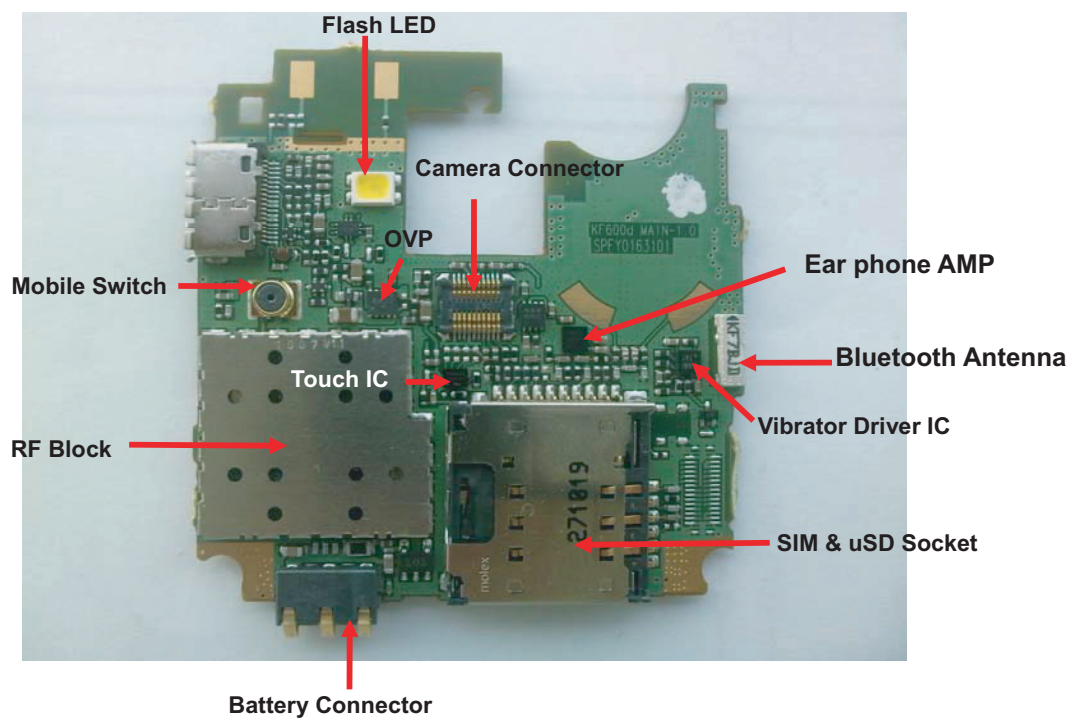
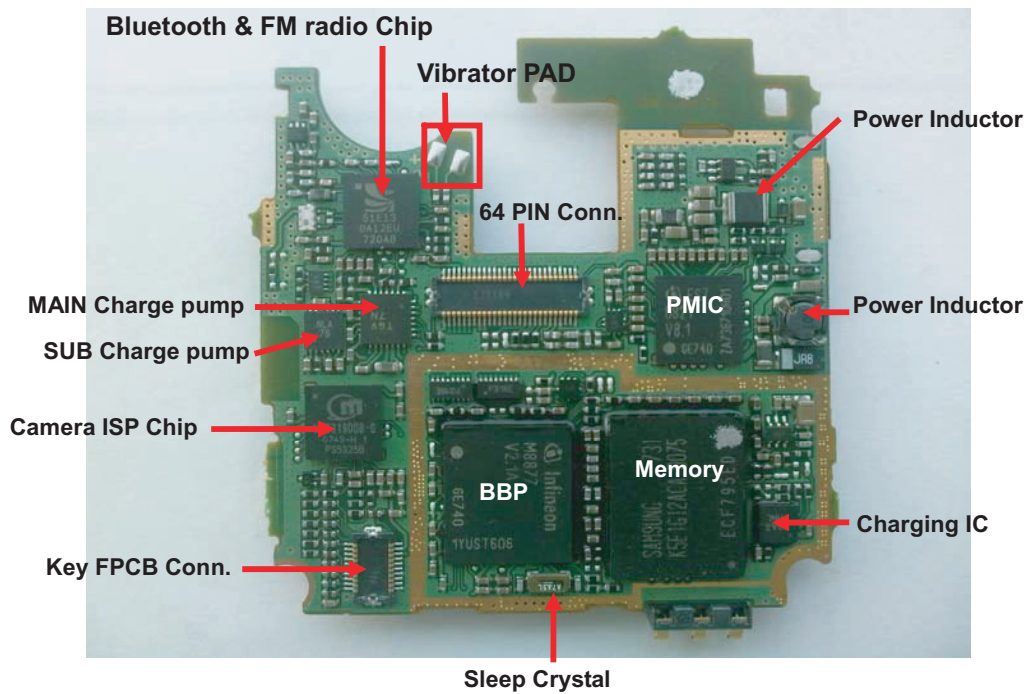


Main PCB bottom

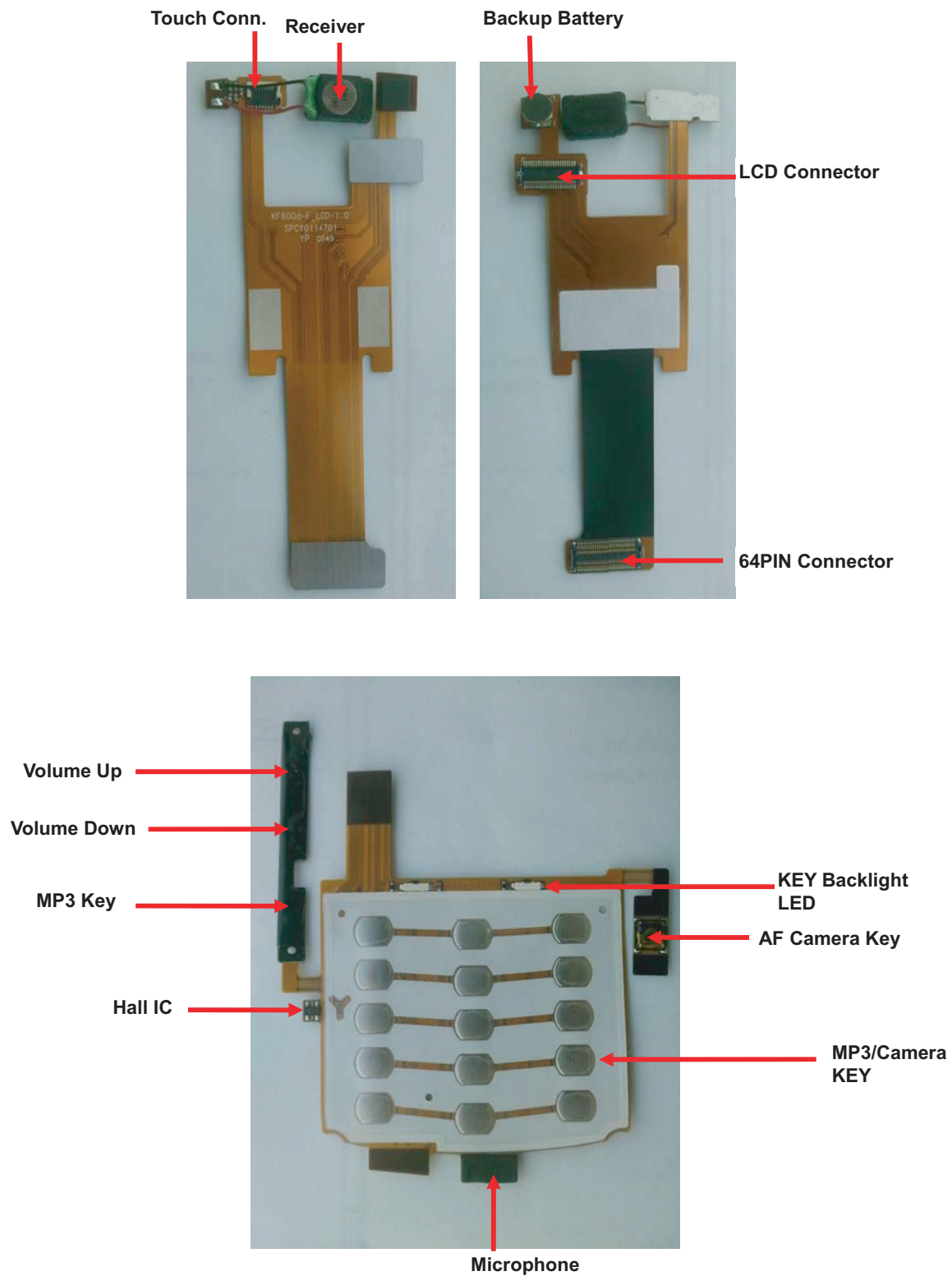


Main PCB bottom placement

4. PCB layout

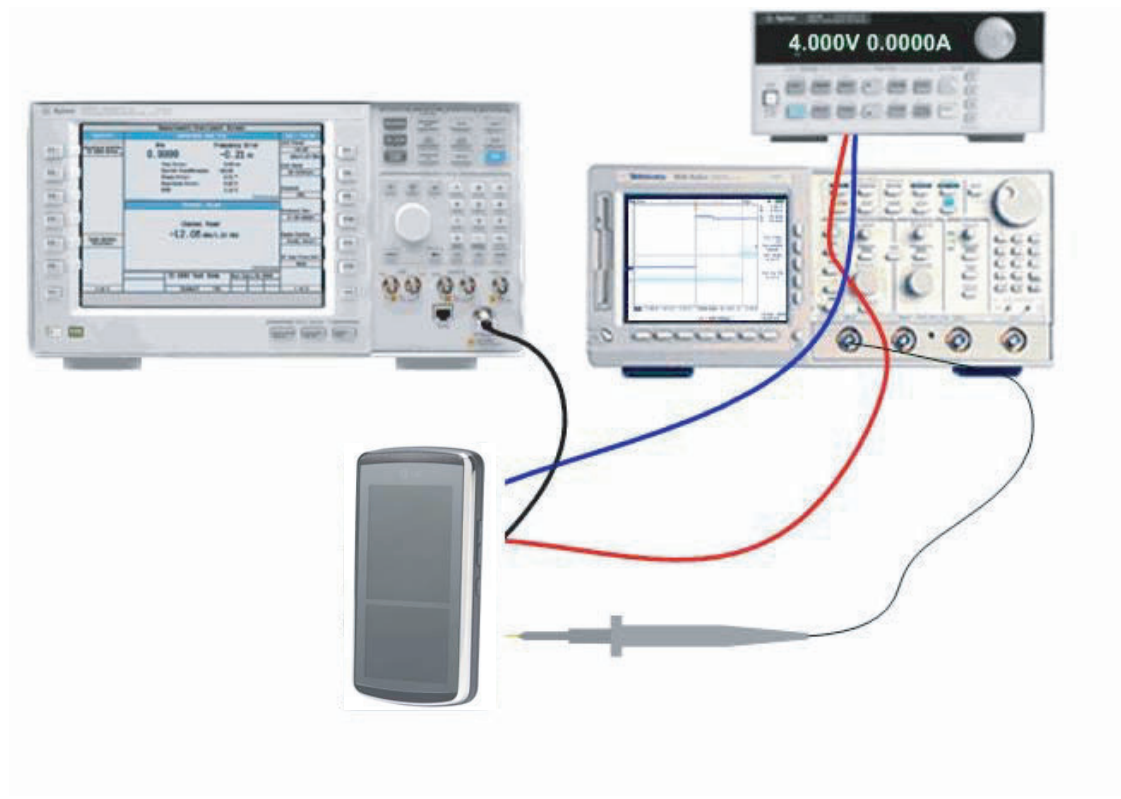


4. PCB layout



5. Trouble shooting

5.1. Trouble shooting test setup



Equipment setup

Power on all of test equipment

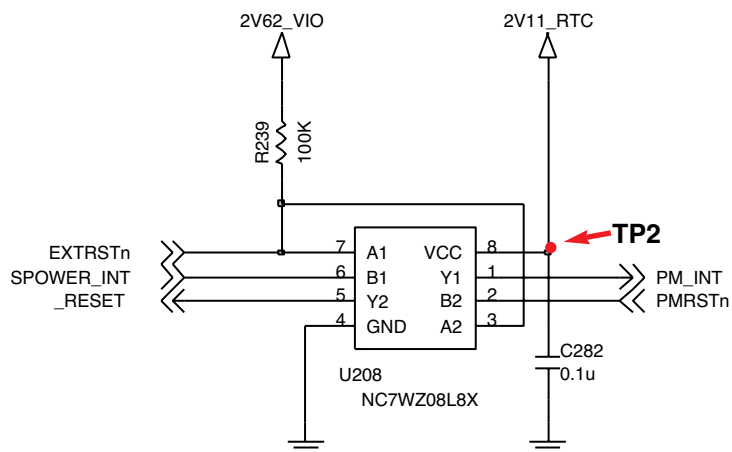
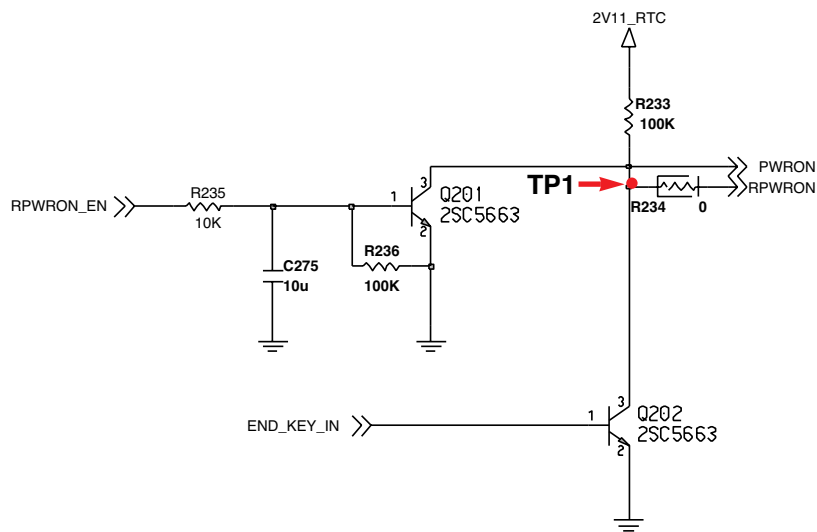
- Connect PIF-UNION JIG or dummy battery to the DUT for power up.
- Connect mobile switch cable between Communication test set and DUT when you need to make a phone call.
- Follow trouble shooting procedure

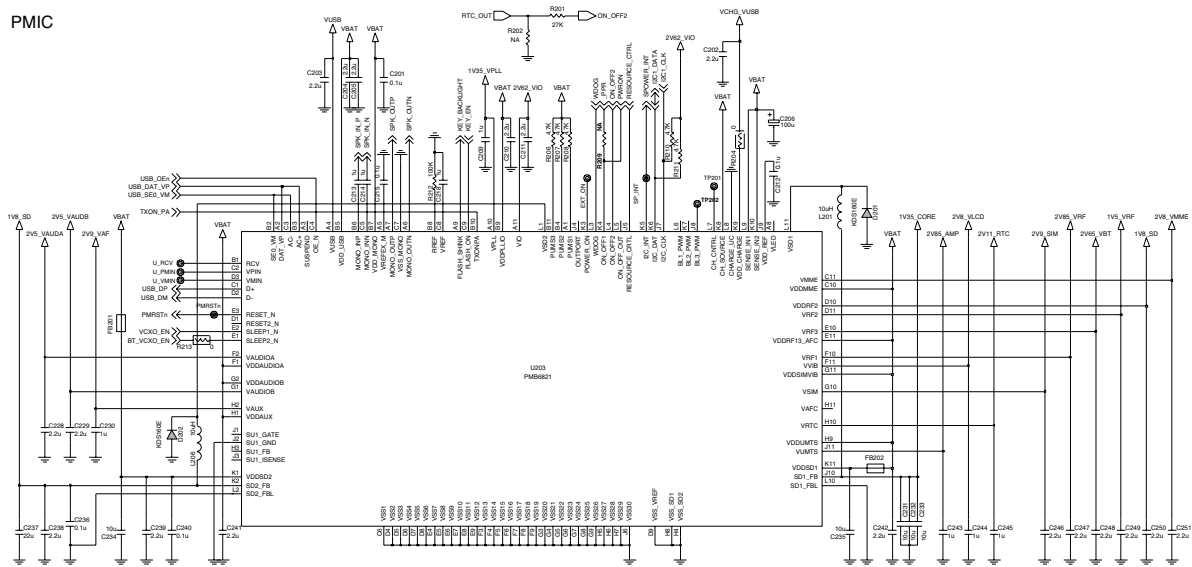
5. Trouble shooting

5.2. Power on Trouble

Check Points

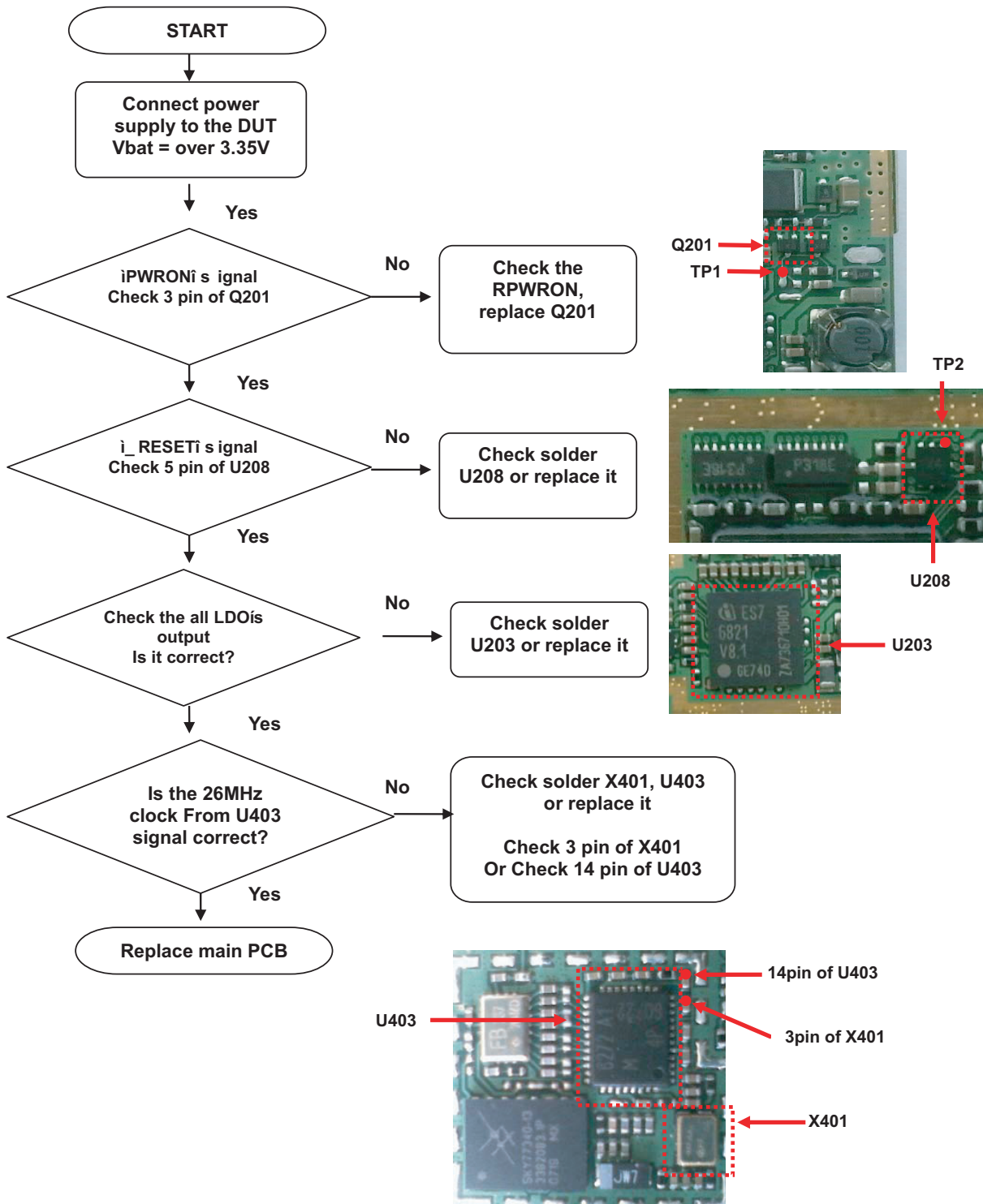
- Battery Voltage(Need to over 3.35V)
- Power-On Key detection (PWRON signal)
- Outputs of LDOs from PMIC





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Only for training and service purposes

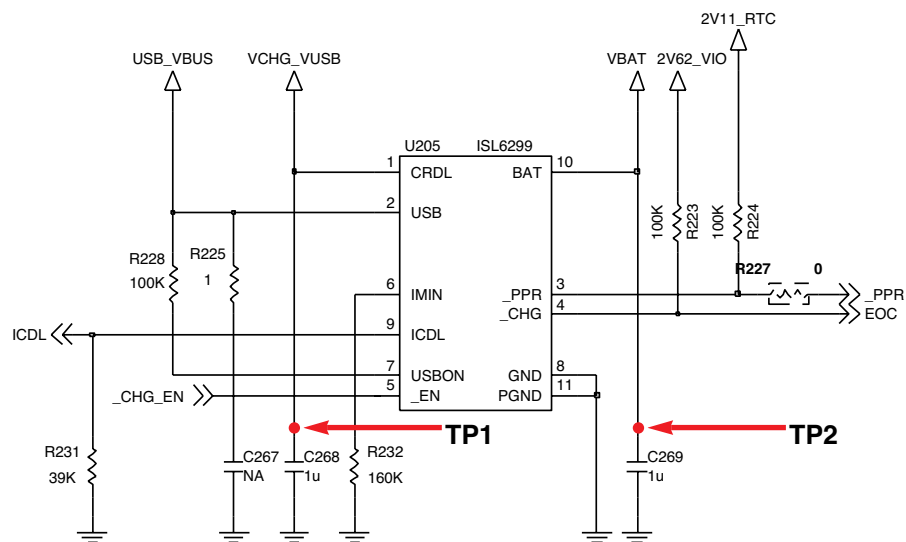
5. Trouble shooting



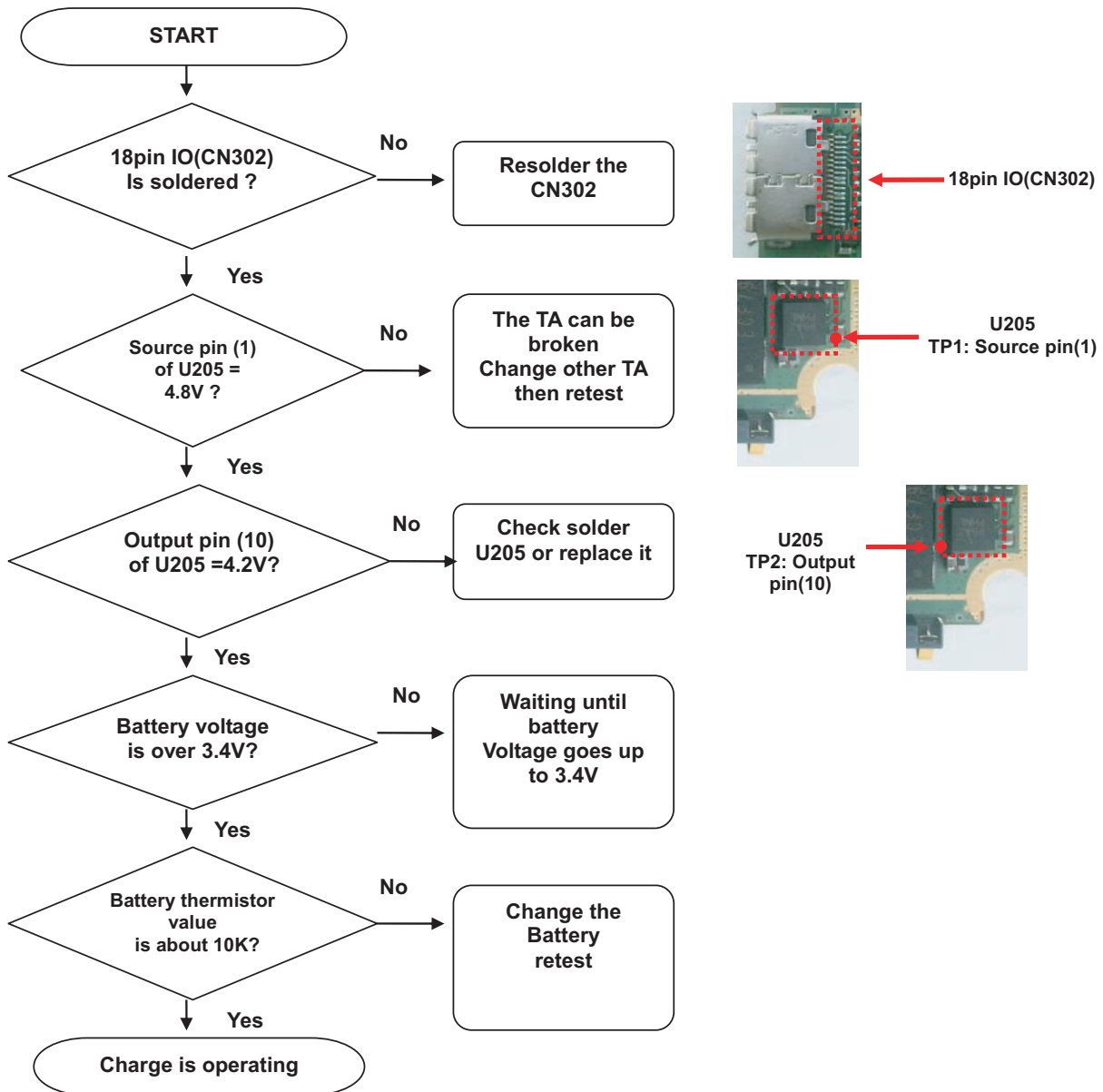
5.3. Charging trouble

Check Points

- Connection of TA (check TA voltage 4.8V)
 - Charging Current Path component voltage drop
 - Battery voltage
- 1 Charging method: CC-CV
 - 2 Charger detect voltage: 4.0 V
 - 3 Charging time: 2h 30m
 - 4 Charging current: 600 mA
 - 5 CV voltage: 4.2 V
 - 6 Cutoff current: 110 mA
 - 7 Full charge indication current (icon stop current): 110 mA
 - 8 Recharge voltage: 4.16 V



5. Trouble shooting

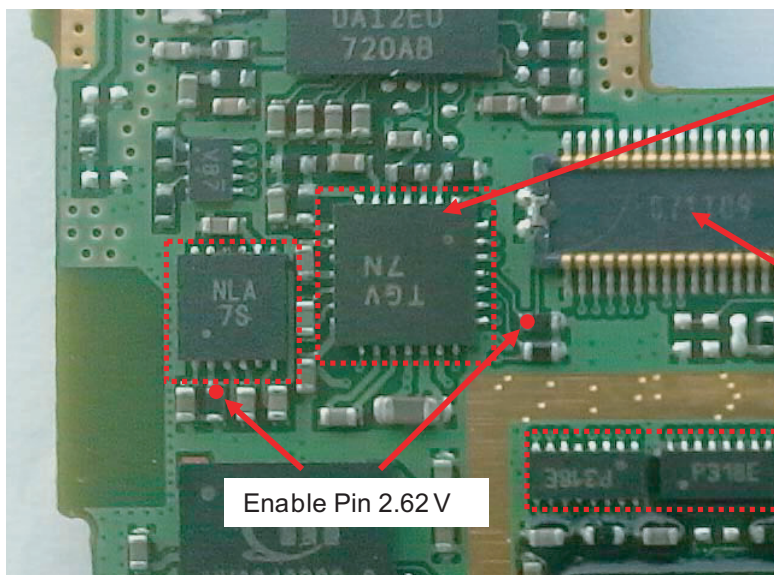
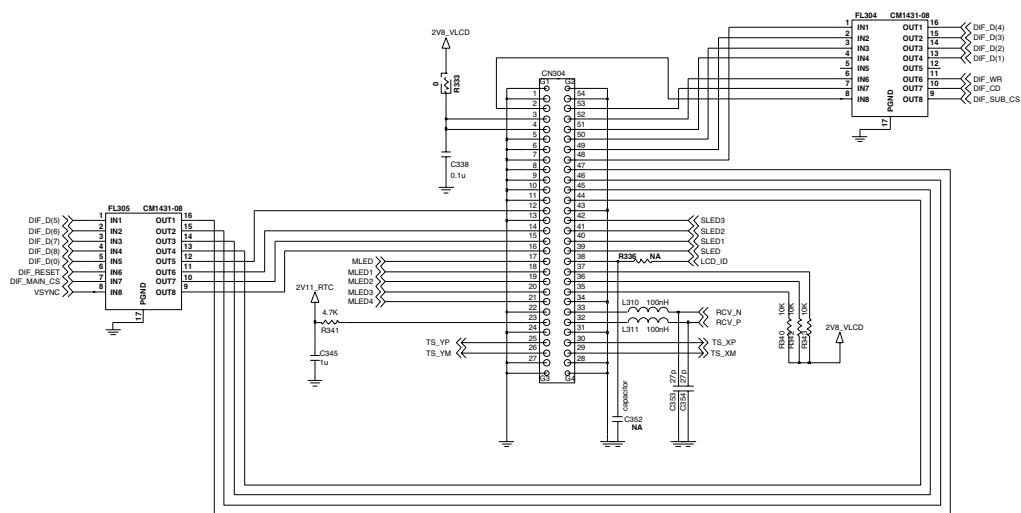


5.4. LCD display trouble

Check Points

- LCD assembly status (LCD FPCB, Connector on FPCB)
- EMI filter soldering
- Connector combination

B-to-B (LCD FPCB)



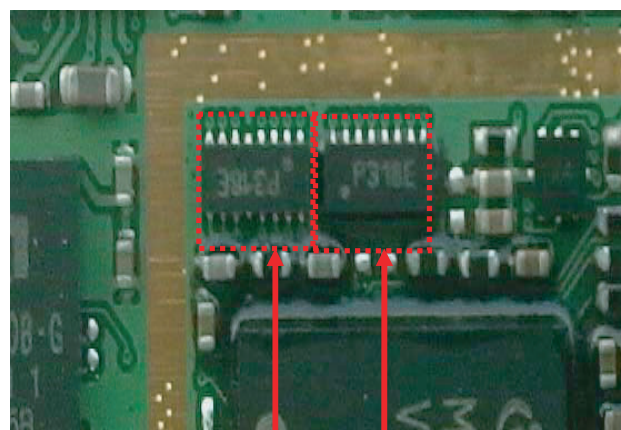
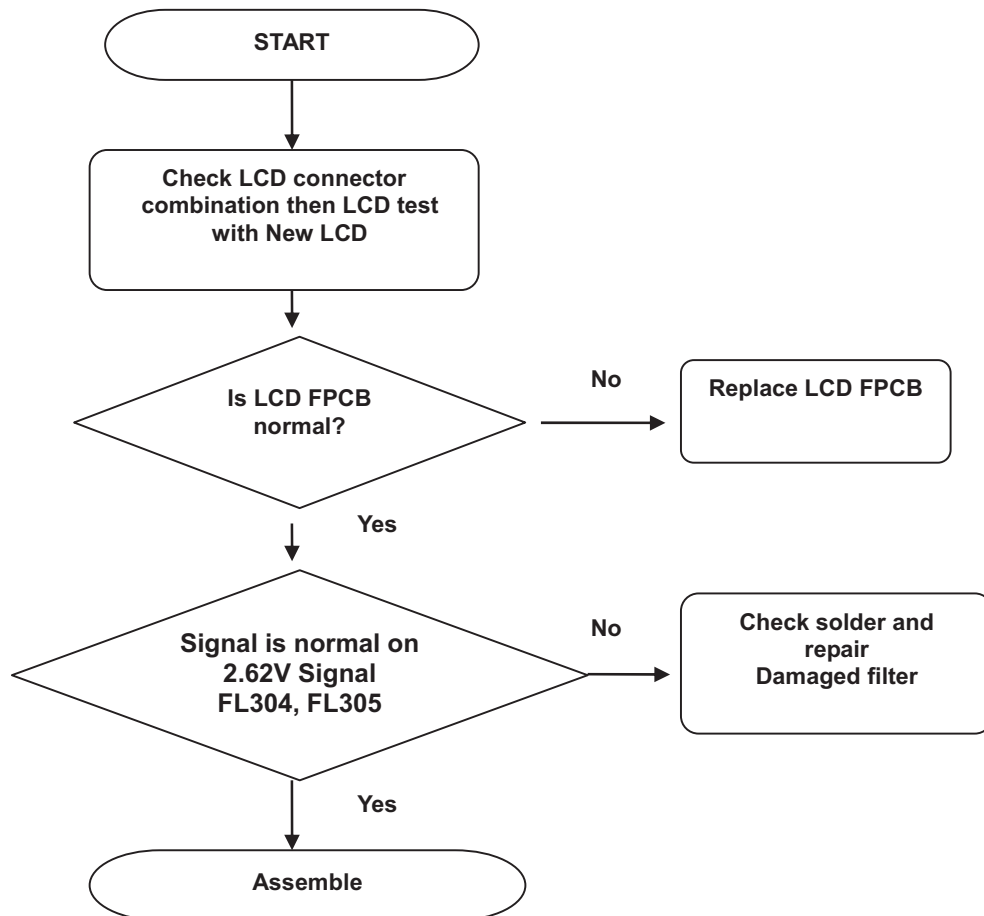
At first check the LCD back light enable signal

Check the connection LCD FPCB Connector

Check signal flow via EMI filter

Enable Pin 2.62 V

5. Trouble shooting

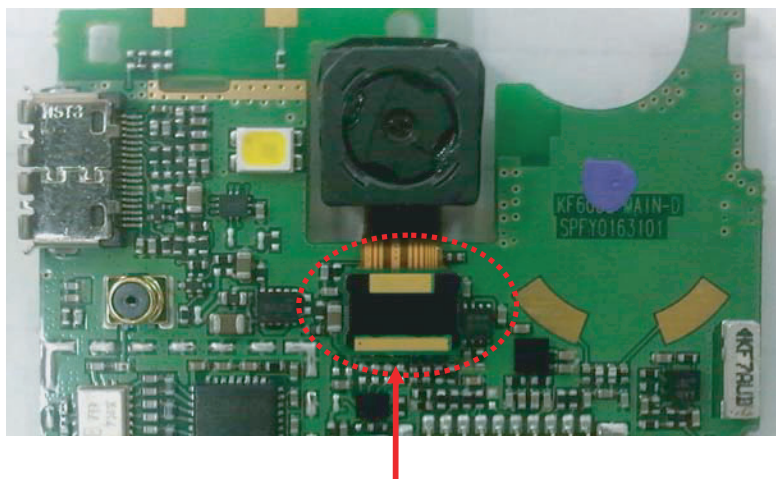
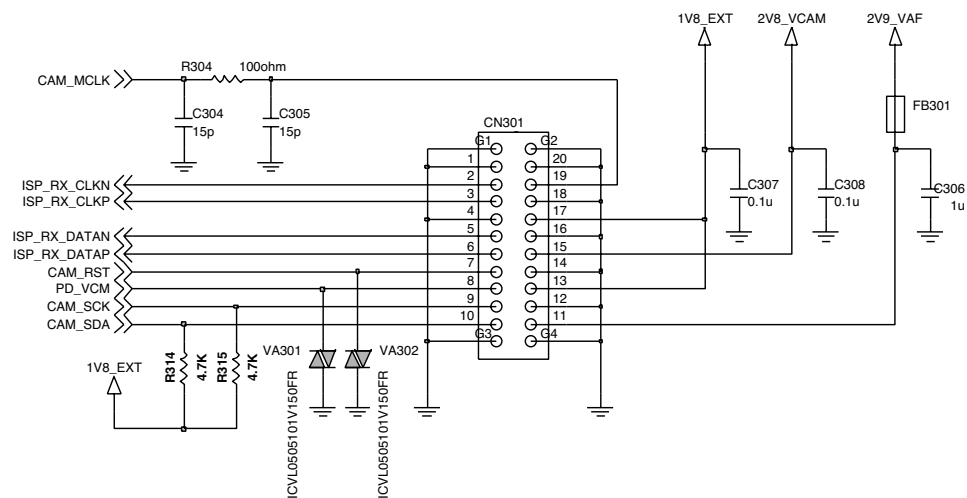


5.5. Camera Trouble

Check Points

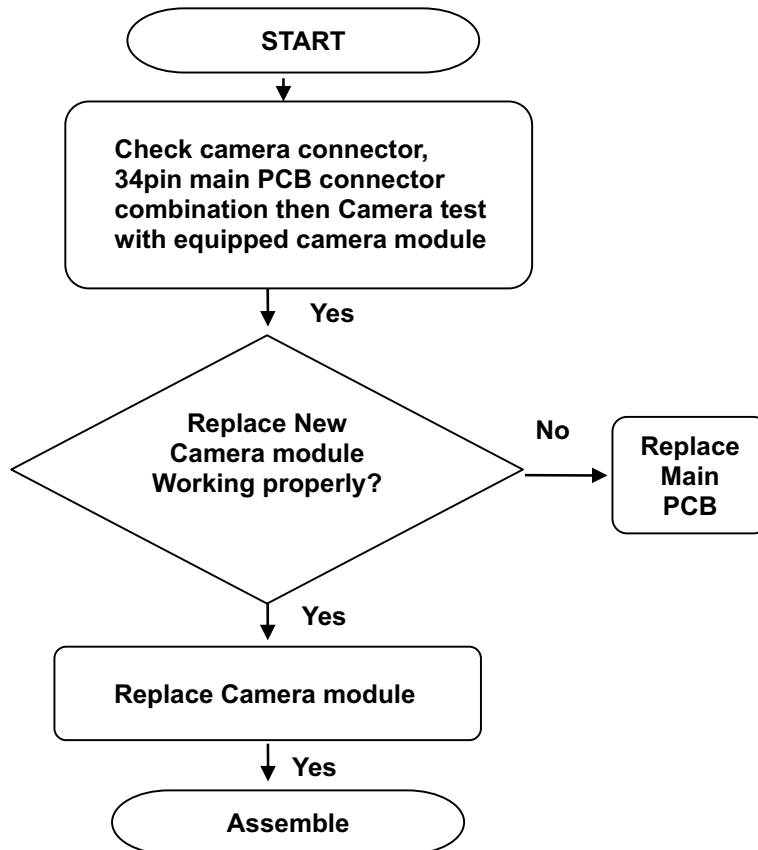
- Connectors combination
- FPCB status

B-to-B (3M Camera Sensor)



Check the connector combination

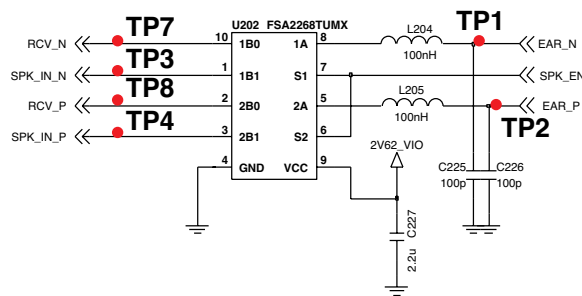
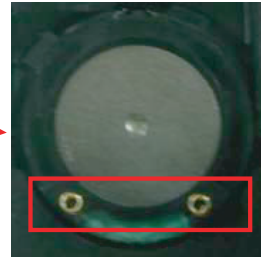
5. Trouble shooting



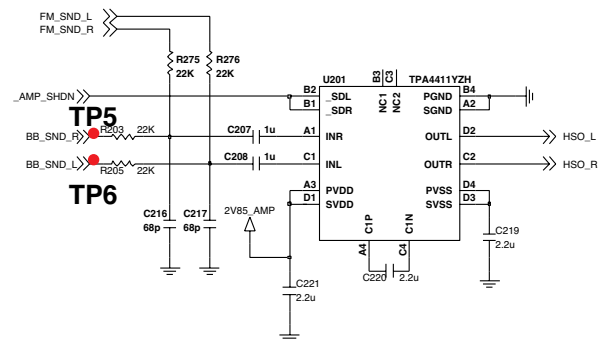
5.6. Receiver & Speaker trouble

Check Points

- Speaker pin contact
- Audio amp soldering
- analog switch soldering



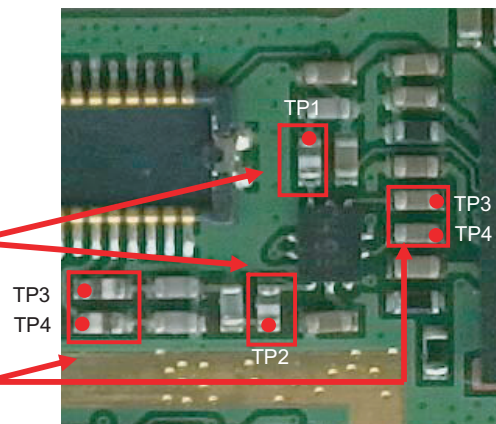
HP AMP & SPK



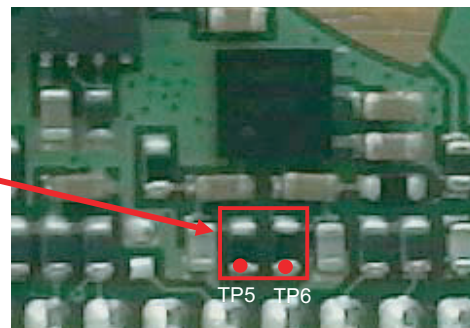
Check the Analog SW

Check Analog SW, Input signal
1.6V

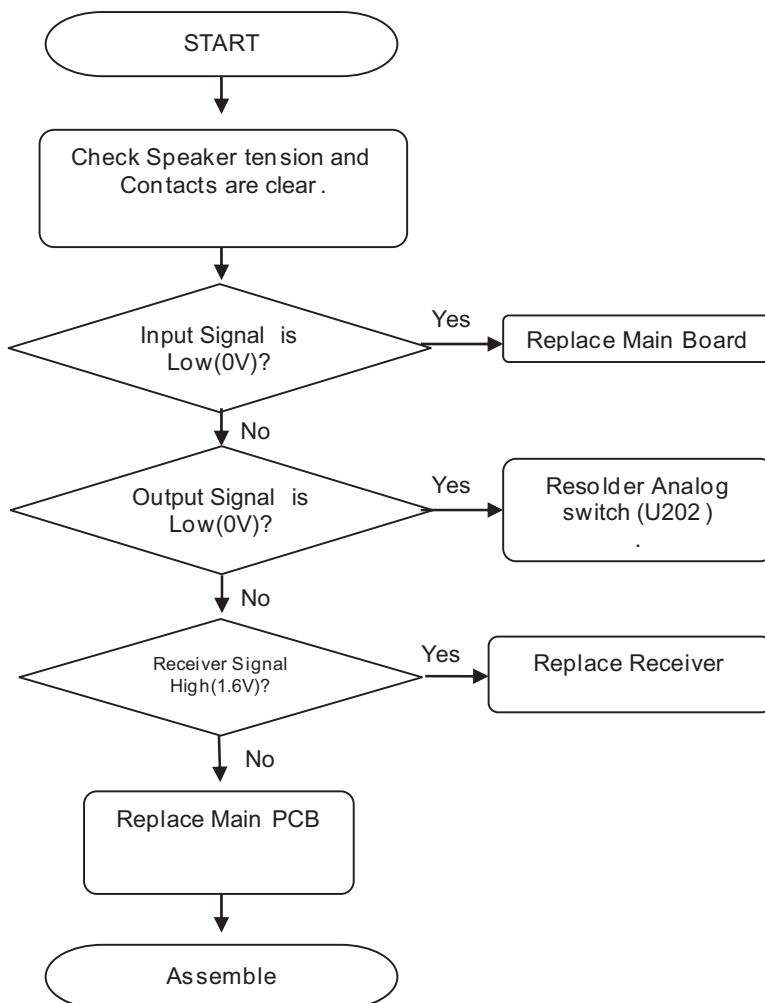
Check Analog SW, Output signal
1.6V



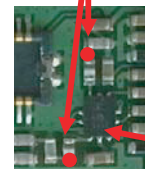
Check Input signal, HP AMP
1.6V



5. Trouble shooting



Input Signal



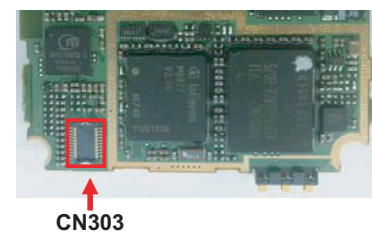
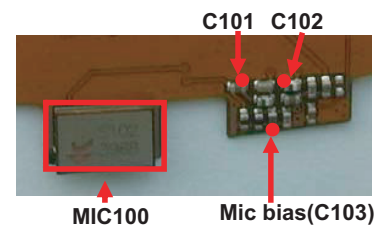
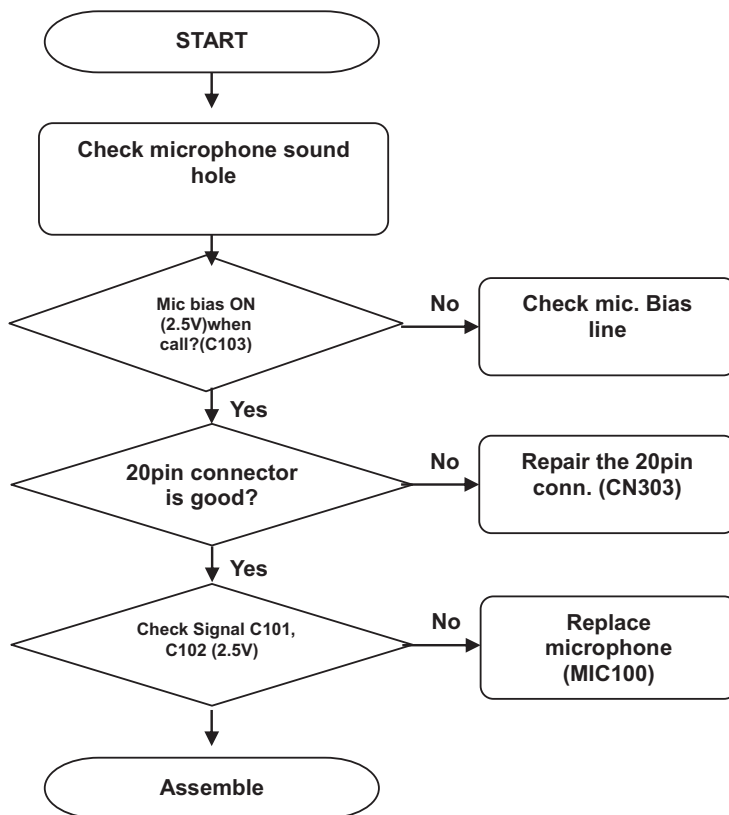
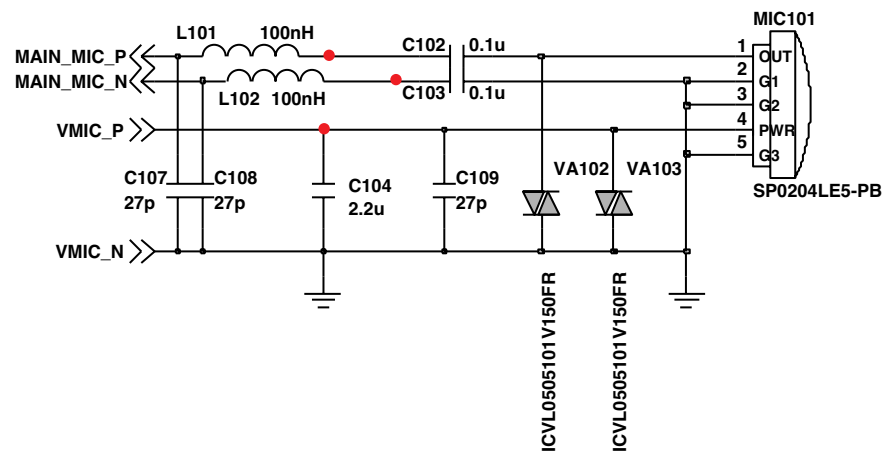
Output Signal

U202

5.7. Microphone trouble

Check Points

- Microphone hole
- Mic. Bias & signal come from

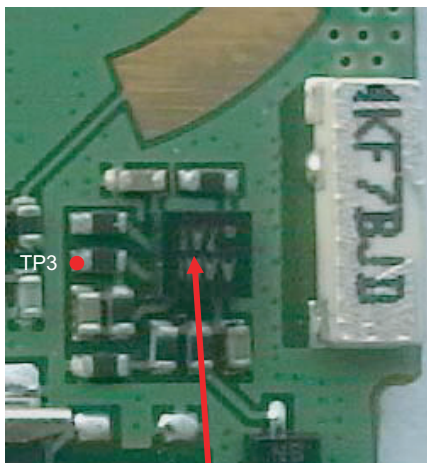
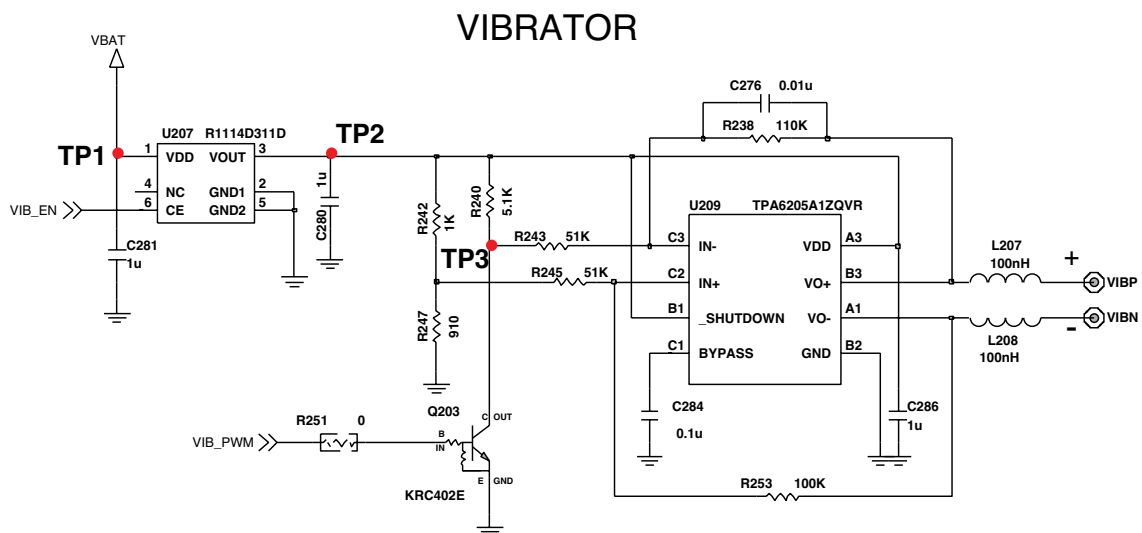


5. Trouble shooting

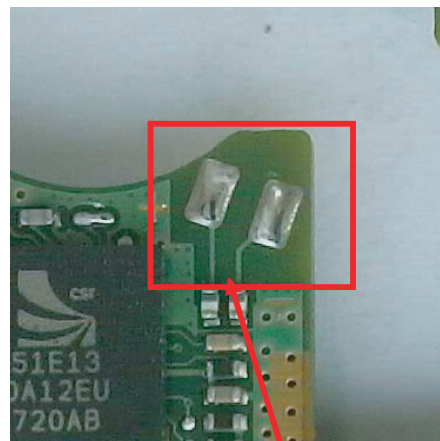
5.8. Vibrator trouble

Check Points

- Vibrator soldering
- IC is working correct

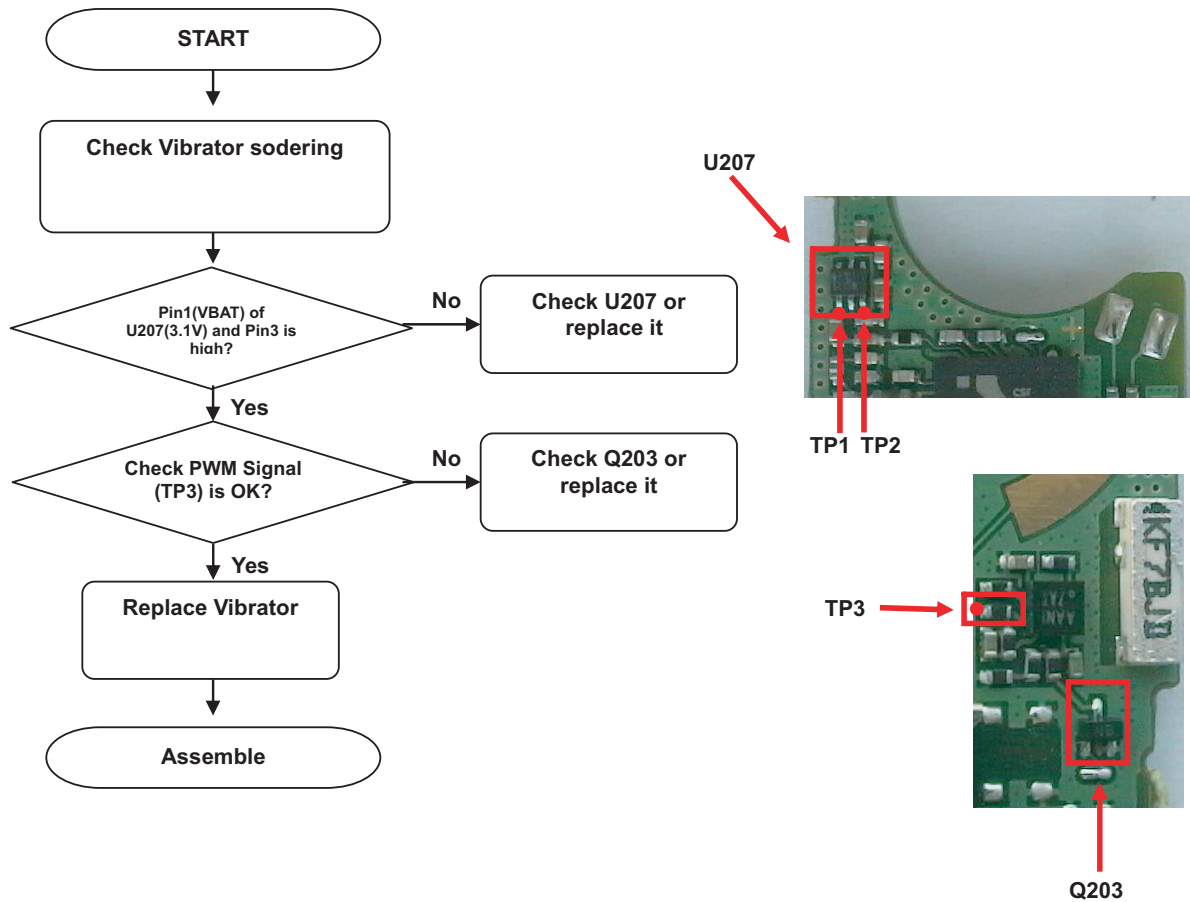


Check the driver
IC(U209)
PWM Signal



Check the soldering is
clear, if there is some
obstacles re-solder

5. Trouble shooting

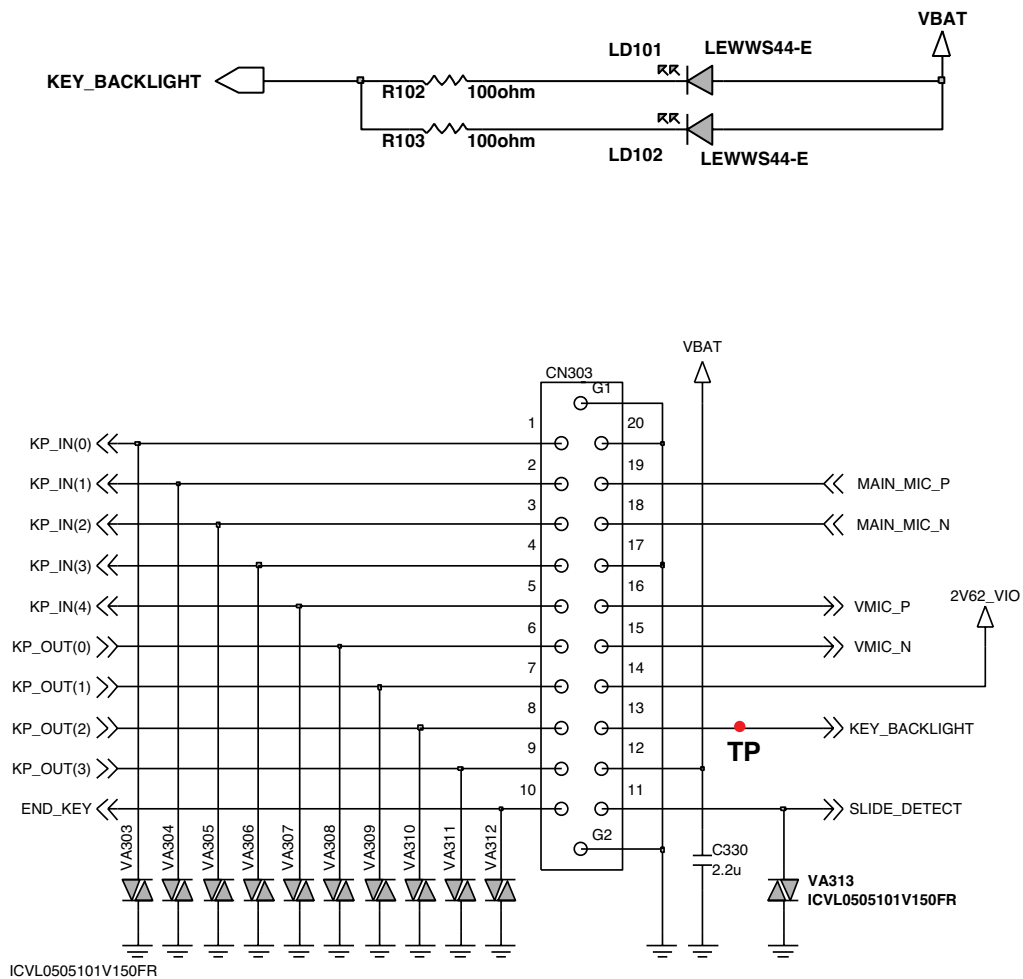


5. Trouble shooting

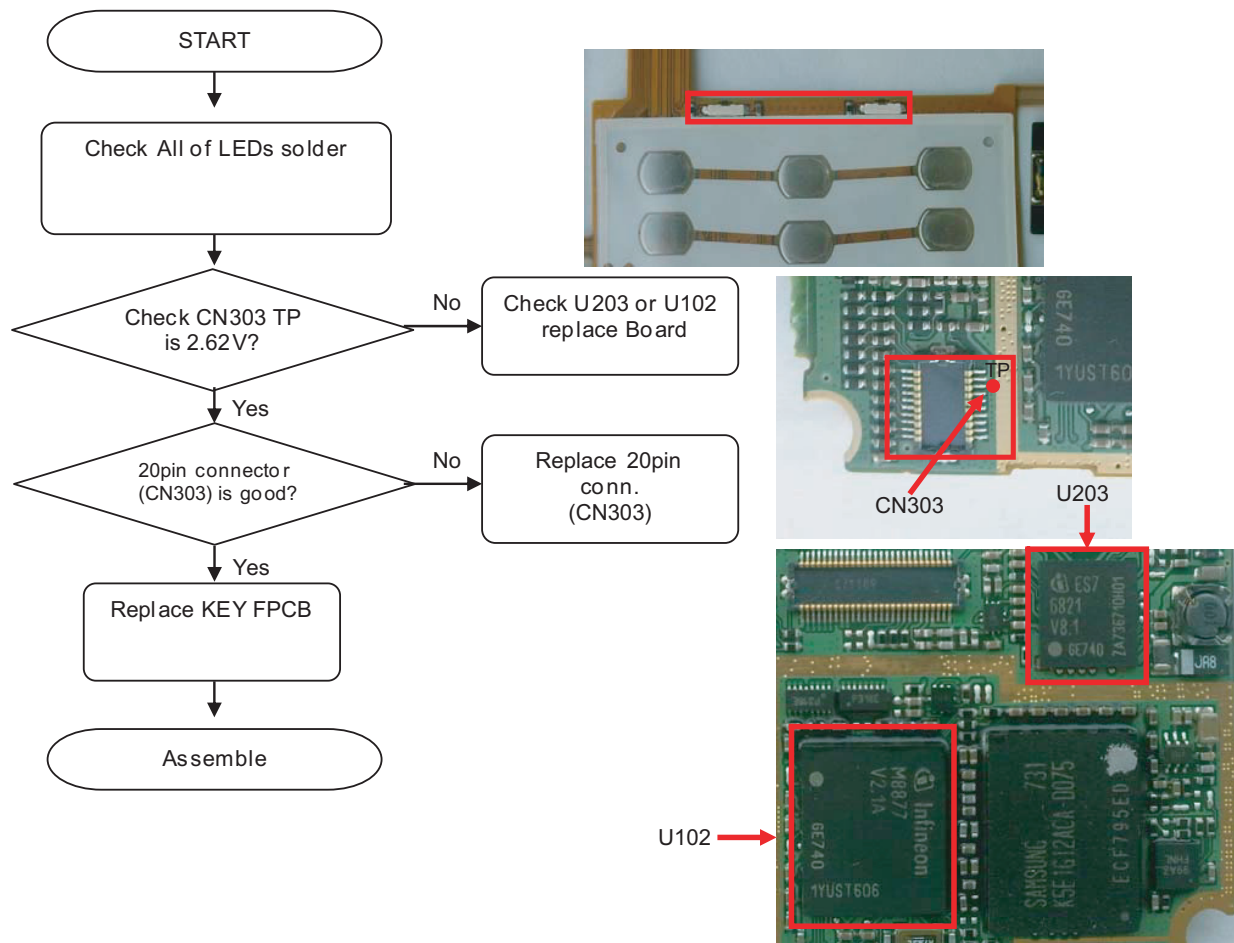
5.9. Keypad back light trouble

Check Points

- Signal path is connected well
- Analog SW is working properly



5. Trouble shooting



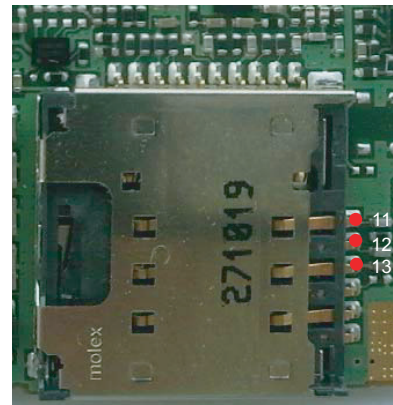
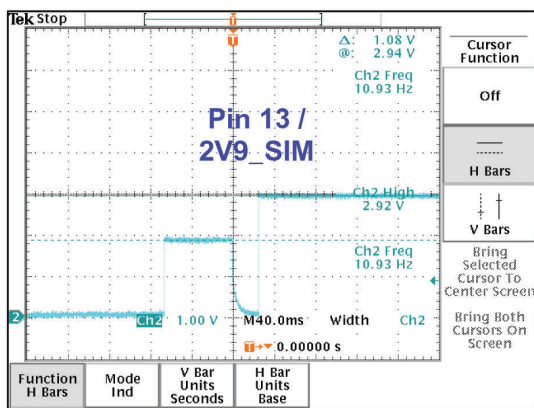
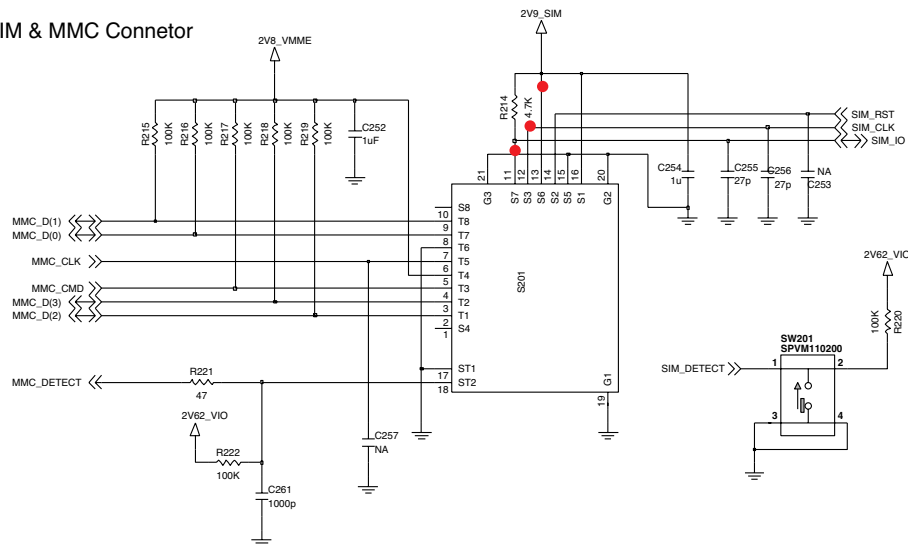
5. Trouble shooting

5.10. SIM & uSD trouble

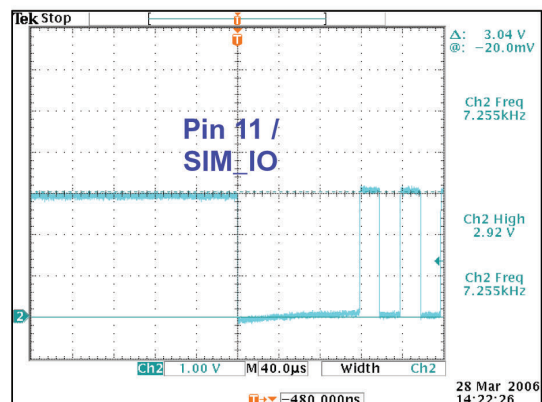
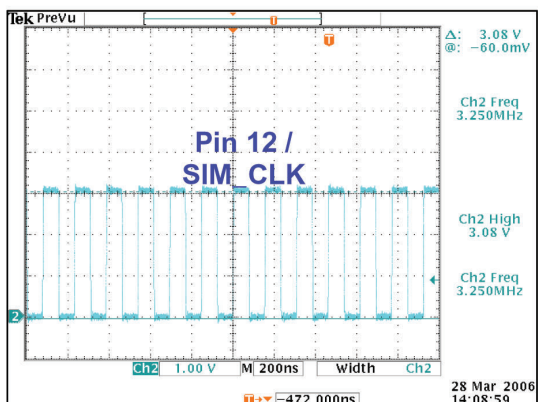
SIM Check Points

- Power is working
- Socket soldering
- Proper SIM is used

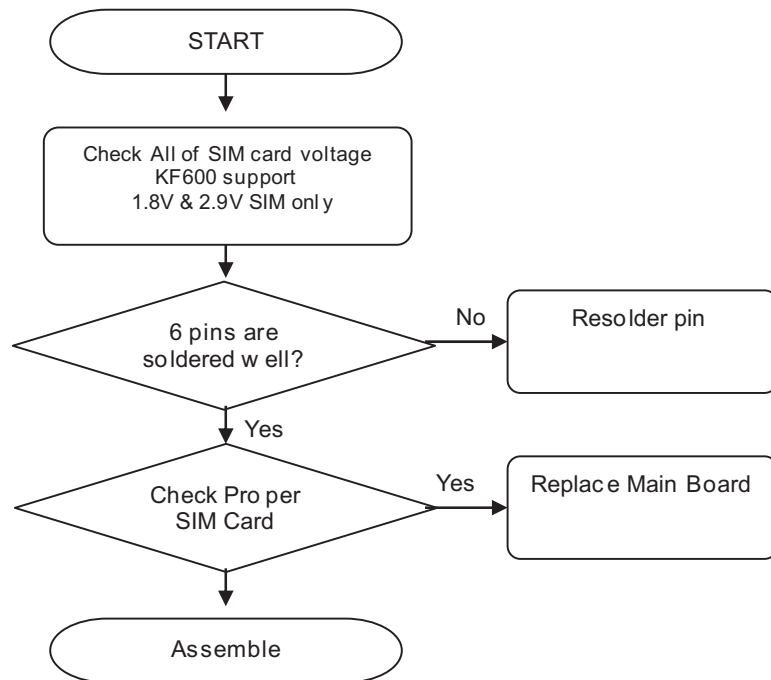
SIM & MMC Connetor



Check soldering all pin of socket



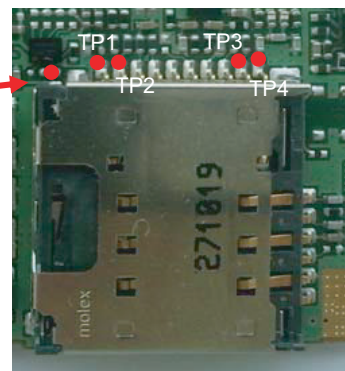
5. Trouble shooting



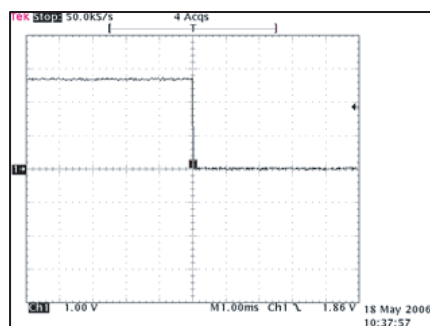
uSD Check Points

- Power is working
- Socket soldering
- Card detect is working

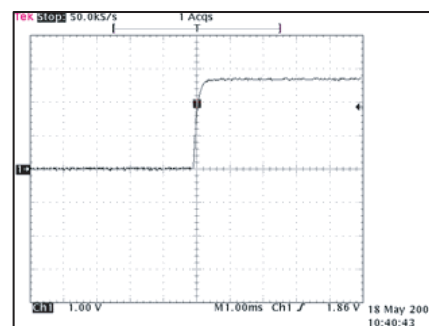
MMC-DETECT PIN



MMC_DETECT SIGNAL

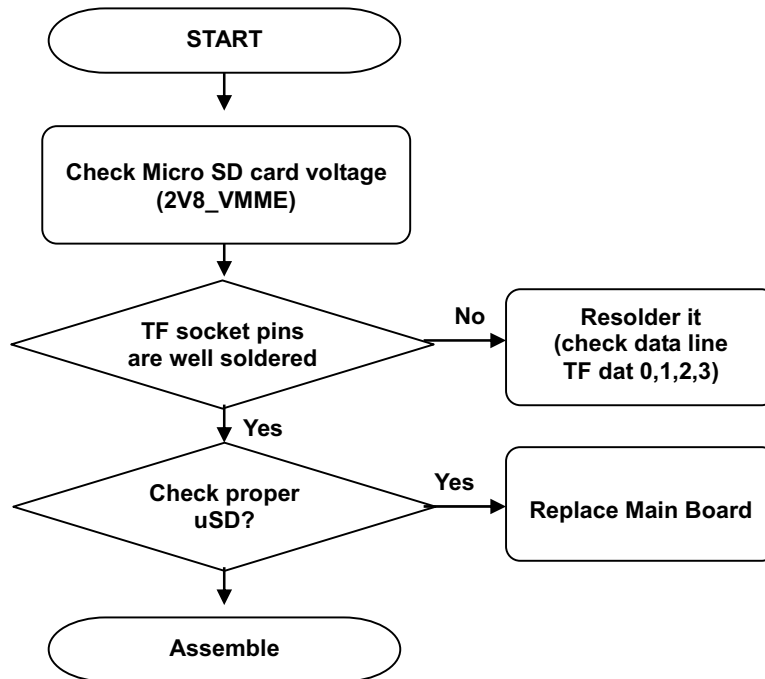


Card insert



Card eject

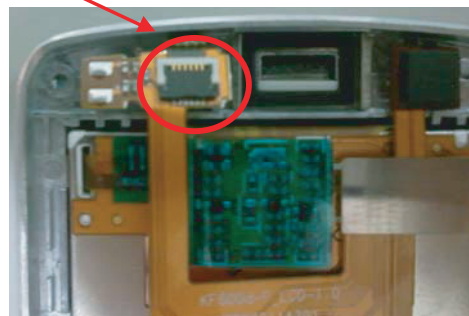
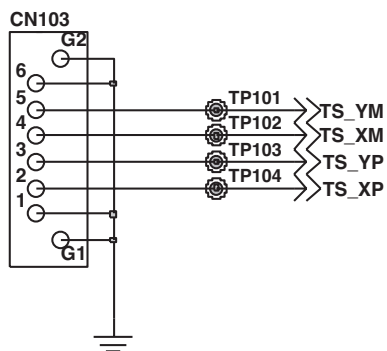
5. Trouble shooting



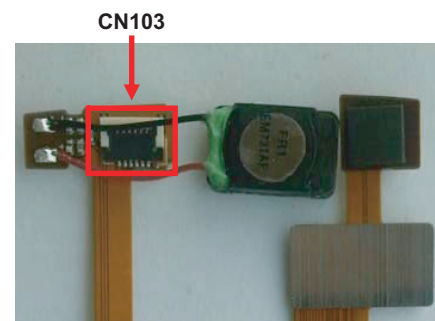
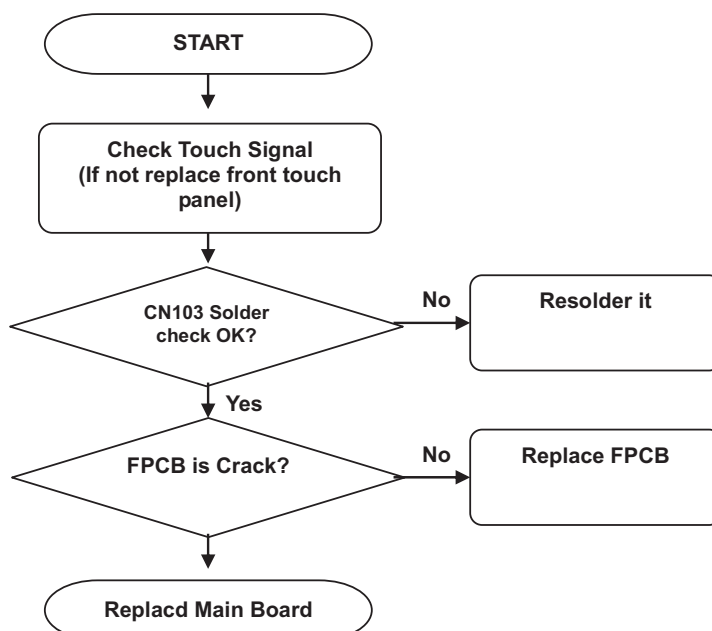
5.11. Touch pad trouble

Check Points

- Connectors combination`
- FPCB Crack



This fault mainly depend on Touch-panel Conn.
Almost of all case, Replace LCD FPCB.

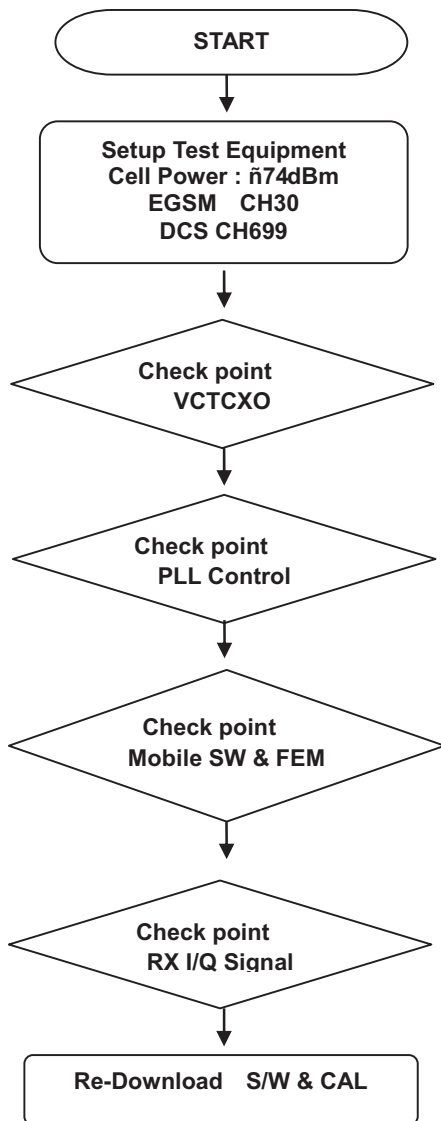


5. Trouble shooting

5.12. Trouble Shooting of Receiver Part

Checking Points

Checking Flow



Checking Points

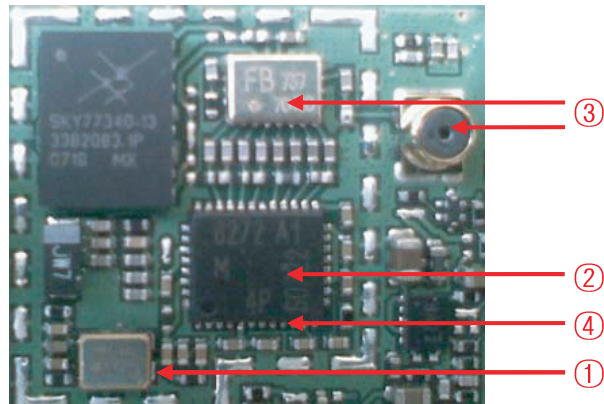


Figure 2. Main PCB Bottom

5.12.1. Checking VCTCXO Circuit

Checking Points

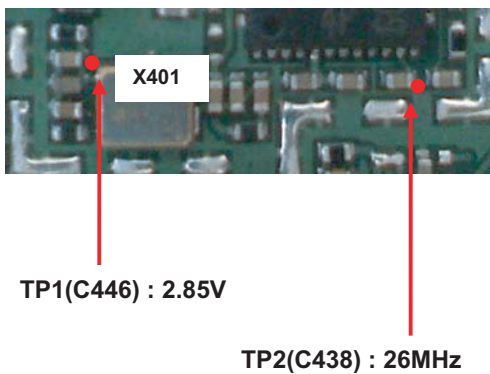
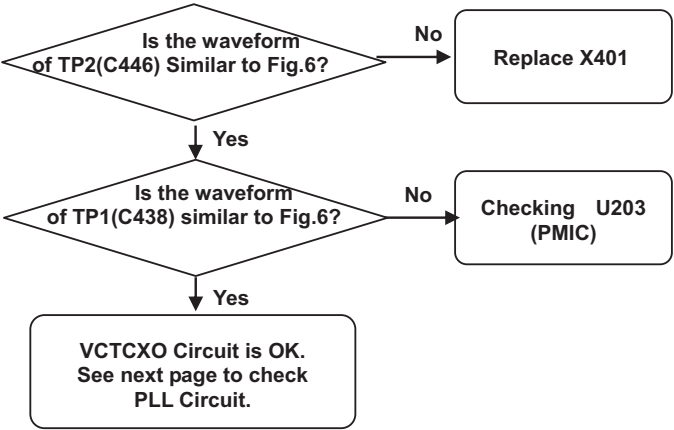


Figure 4.

Checking Flow



VCTCXO Circuit Diagram

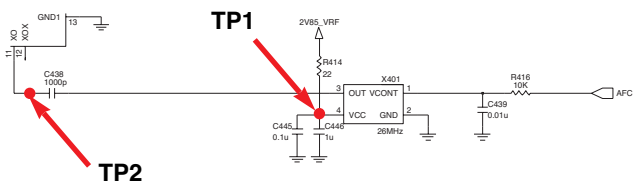


Figure 5. VCTCXO

Waveform

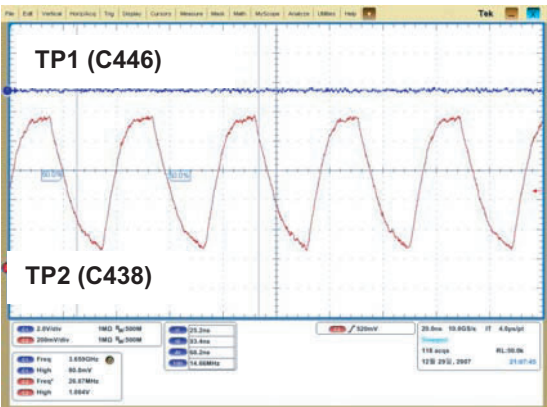


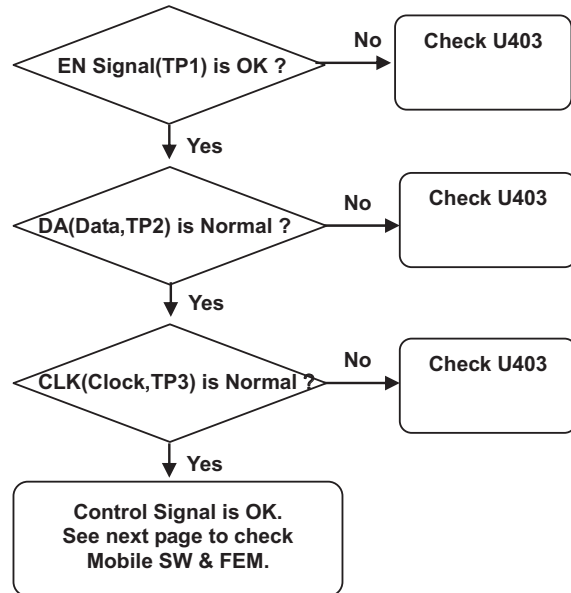
Figure 6. VCTCXO Waveform

Checking Points



Figure 7. Transceiver

Checking Flow



RF Transceiver Circuit Diagram

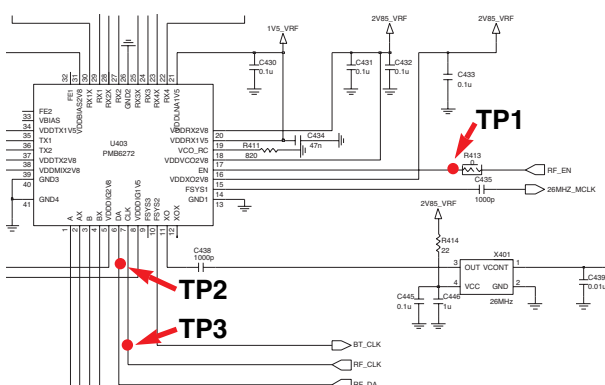


Figure 8. Transceiver Circuit

Waveform

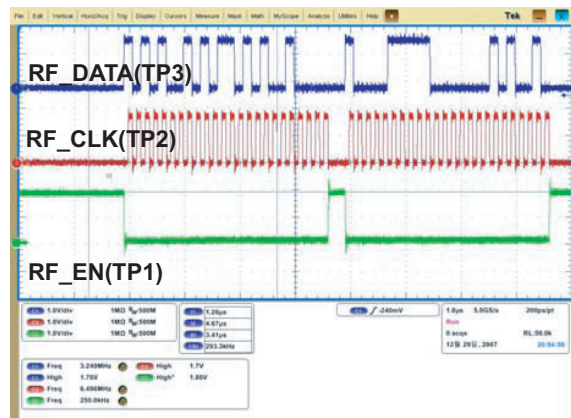


Figure 9. PLL Control Waveform

5.12.3. Checking Mobile SW & FEM

Mobile SW & FEM Circuit Diagram

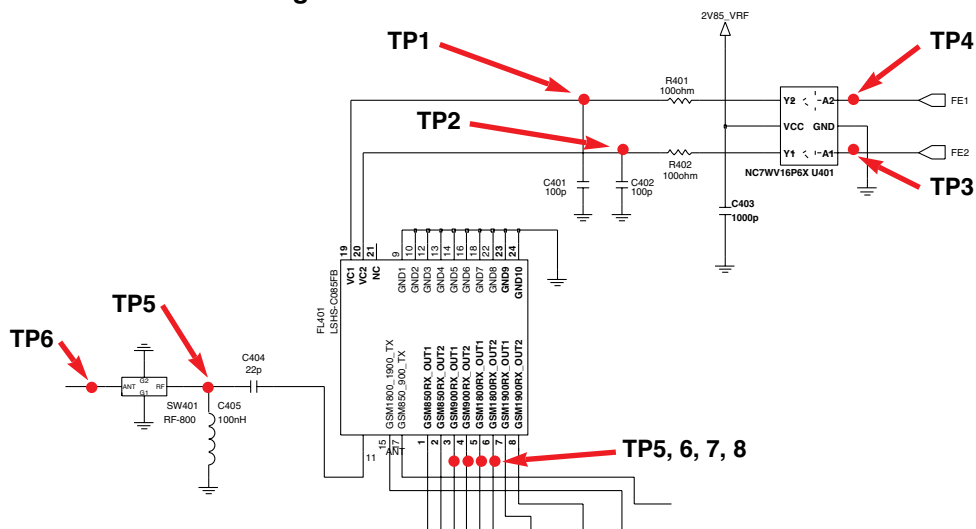


Figure 10. Mobile SW & FEM Circuit

Checking Points

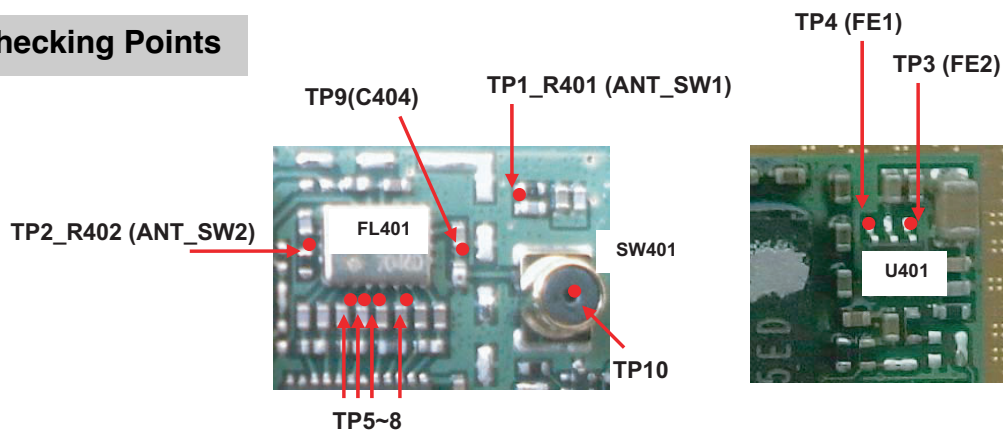


Figure 11. Mobile SW & FEM

RX Mode	EGSM	DCS	PCS
ANT_SW1	Off	Off	Off
ANT_SW2	Off	Off	Off

Table 2. FEM RX Control Logic

Checking Flow

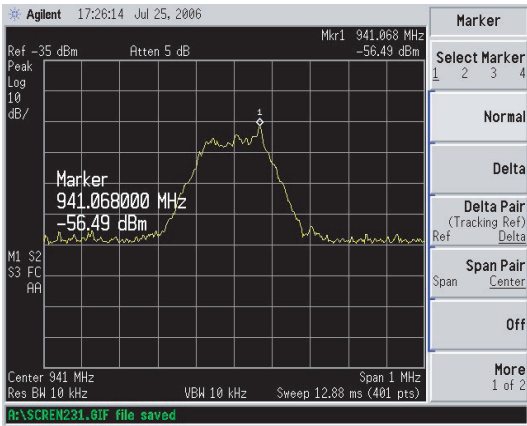
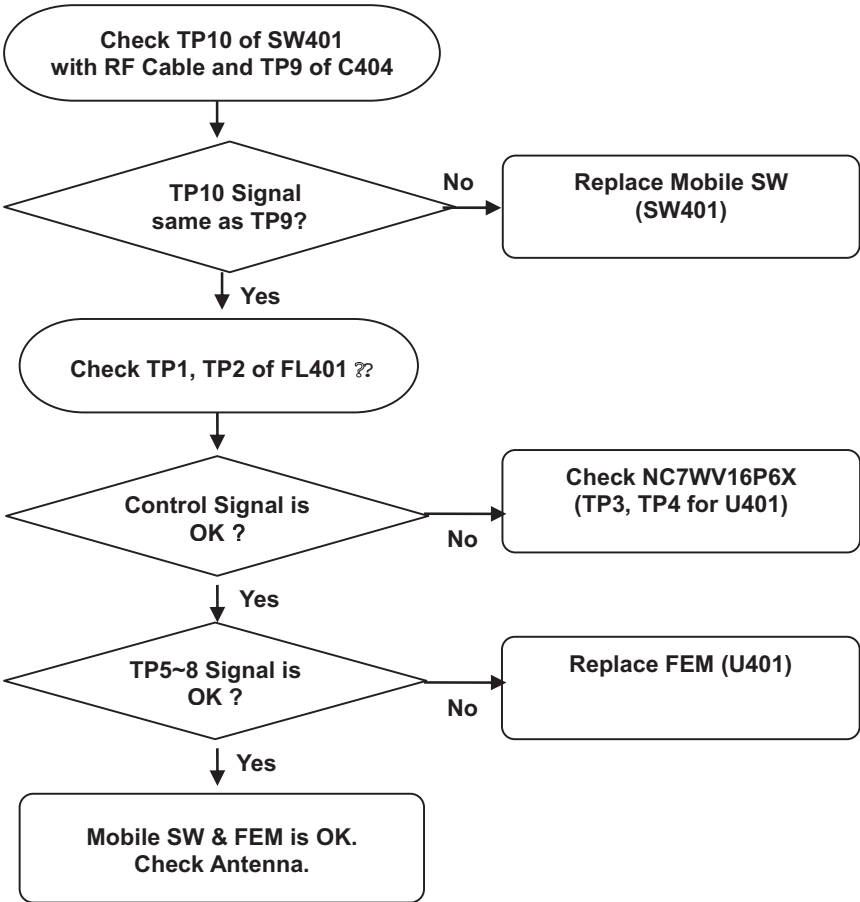


Figure 12 Mobile SW

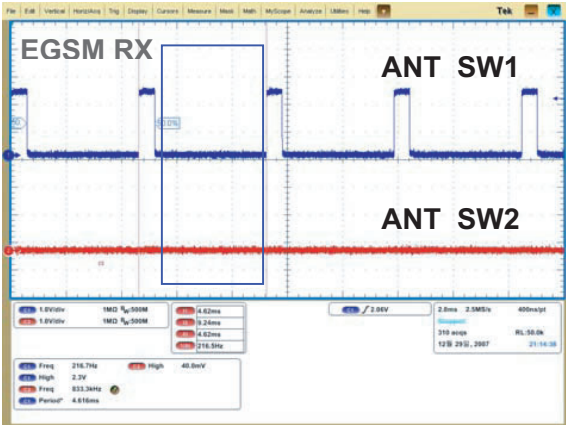


Figure 13 FEM Control Signals

5.12.4. Checking RX I/Q Signals

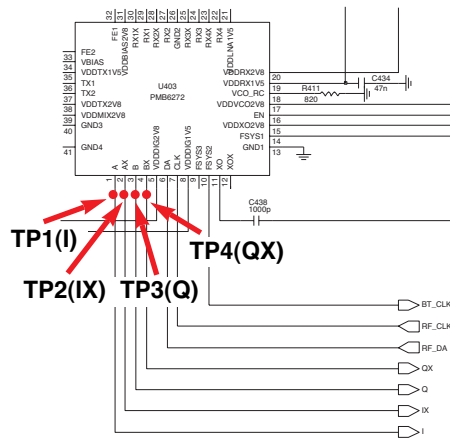
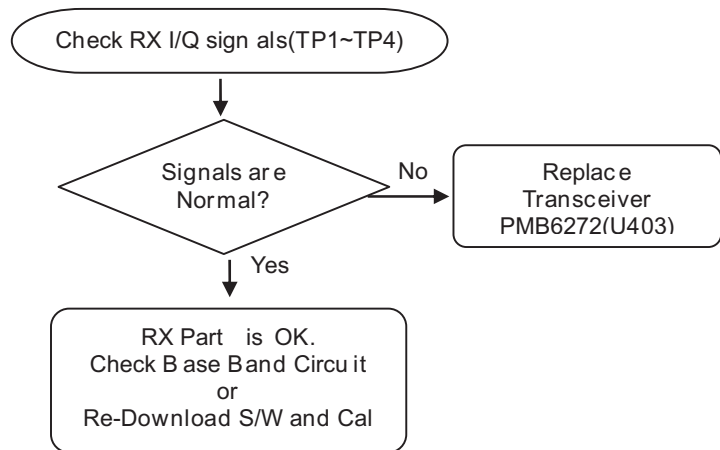


Figure 14. RX I/Q Circuit

Checking Flow



Checking Points

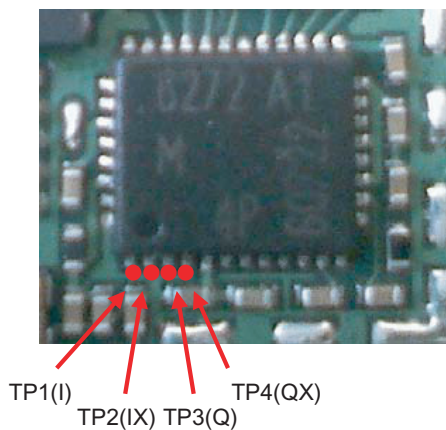


Figure 15. RX I/Q

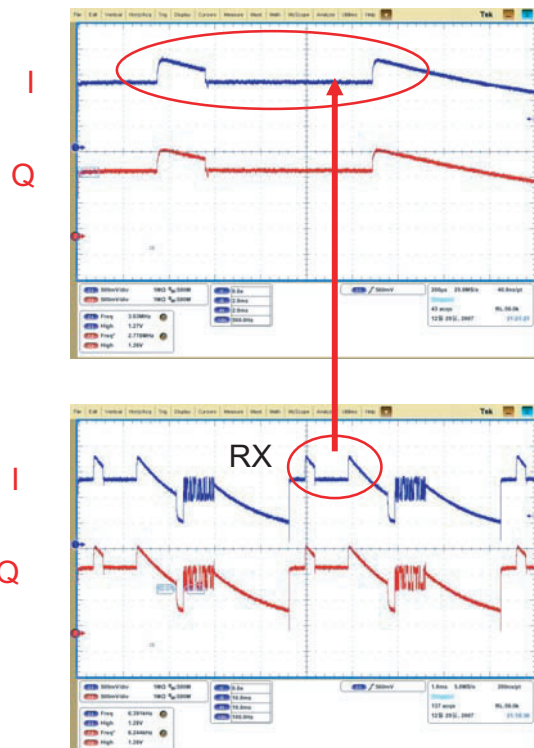
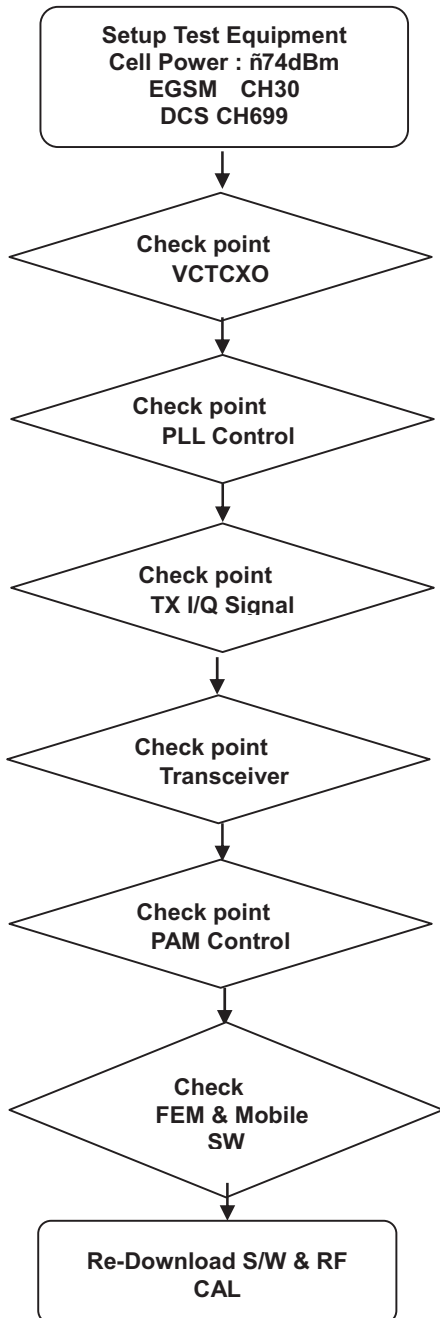


Figure 16. RX I/Q Waveform

5. Trouble shooting

5.13. Trouble Shooting of Transmitter Part

Checking Flow



Checking Points

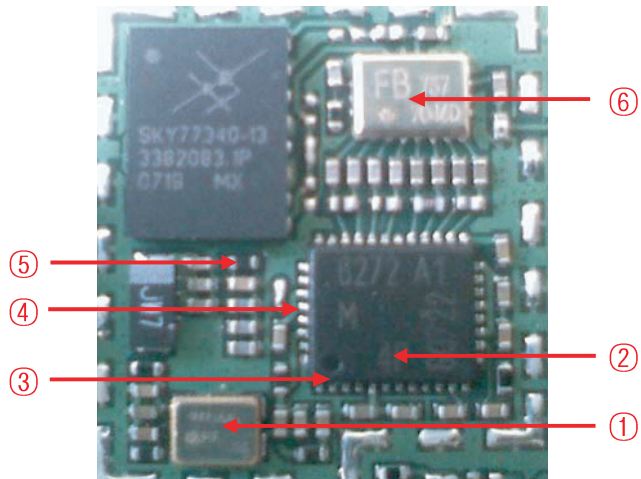


Figure 17. Main PCB

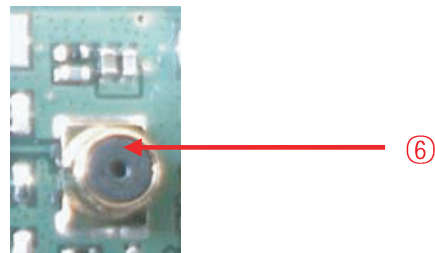


Figure 18. Main PCB Bottom

5.13.1. Checking VCTCXO Circuit

See RX Part “1. Checking VCTCXO Circuit”

5.13.2. Checking PLL Control Signal

See RX Part “2. Checking PLL Control Signal”

5.13.3. Checking TX I/Q Signals

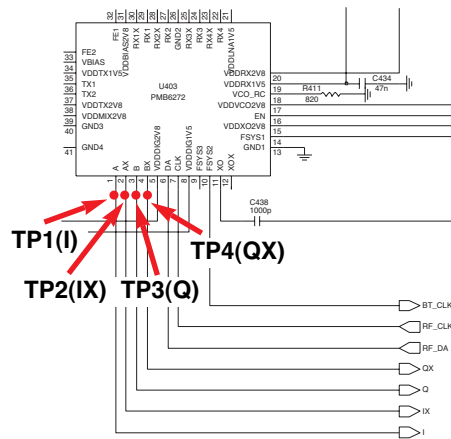
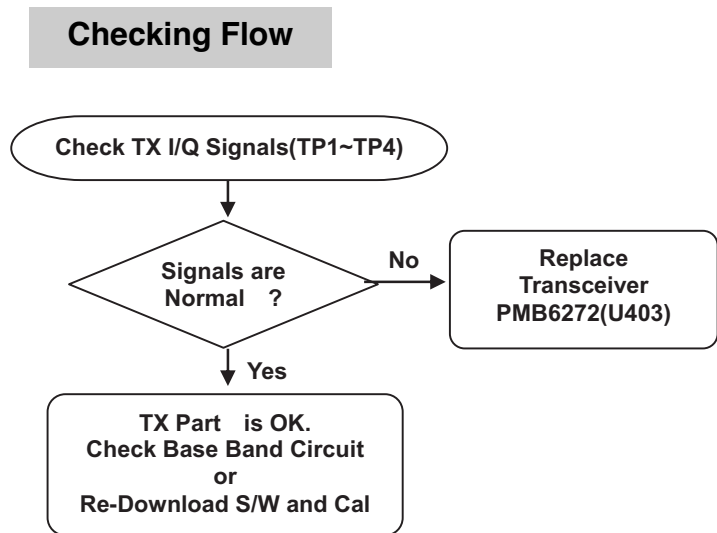


Figure 19. TX I/Q



Checking Points

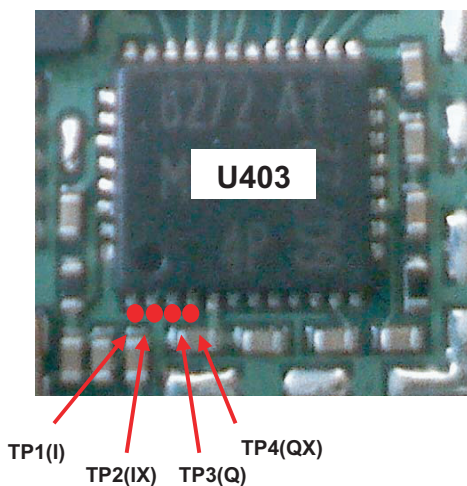


Figure 20. TX I/Q

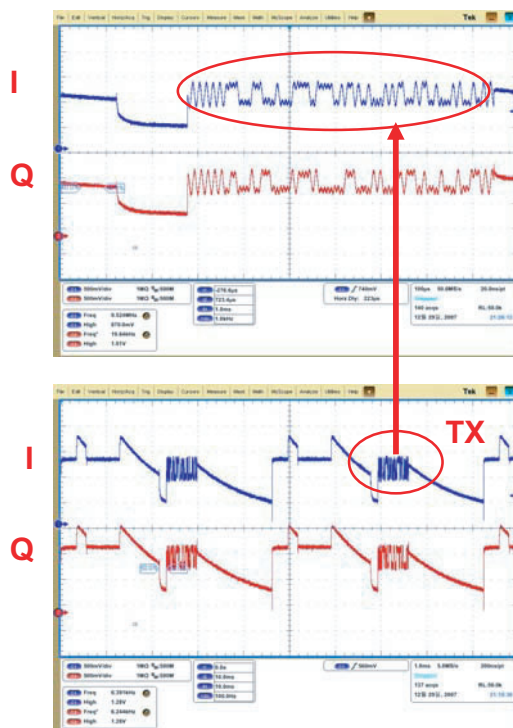


Figure 21. TX I/Q Waveform

5.13.4. Checking Transceiver Output Signals

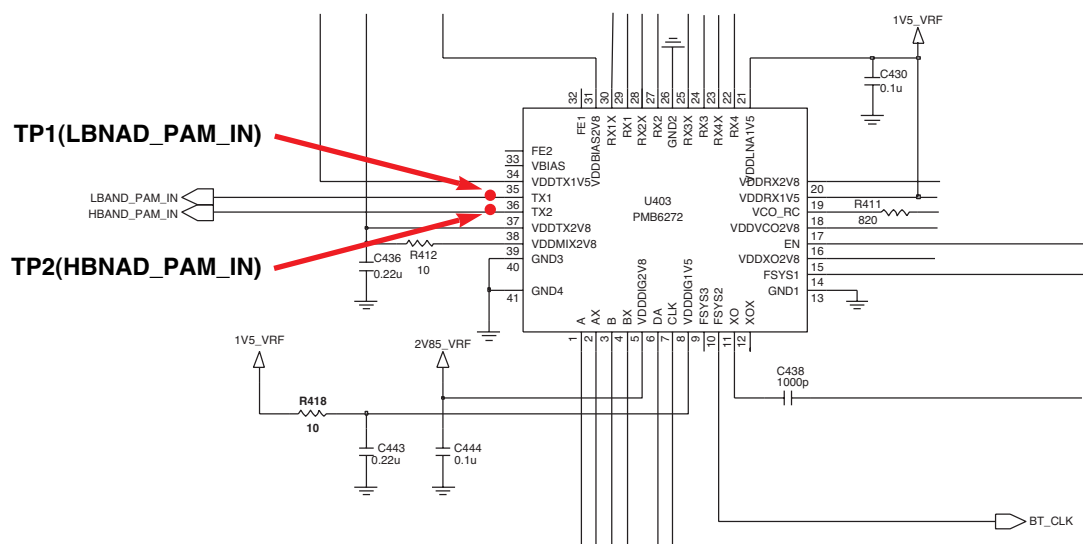


Figure 22. Transceiver Output Circuit

Checking Points

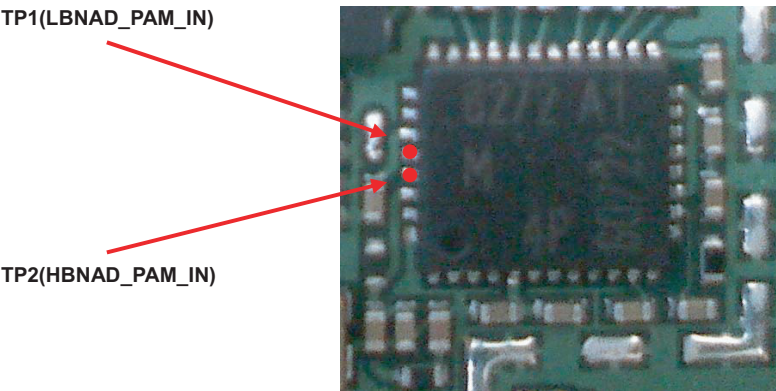


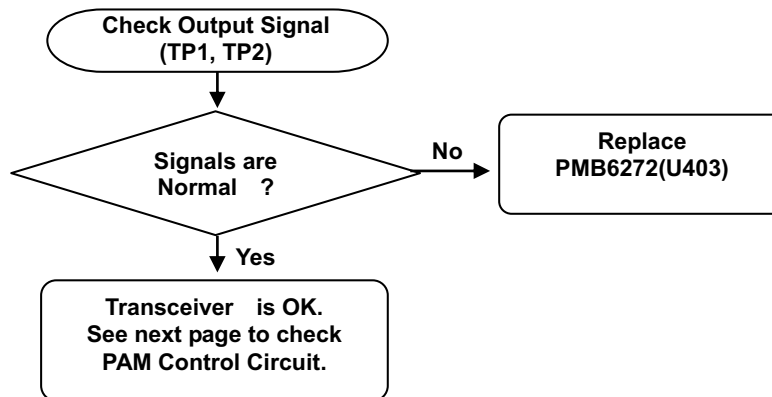
Figure 23. Transceiver Output

MODE	Transceiver Output
GMSK	Fixed
8PSK	Ramp Burst Control

Table 3. Transceiver Output Operation

5. Trouble shooting

Checking Flow



LBAND_PAM_IN (MODE: GMSK): TP1

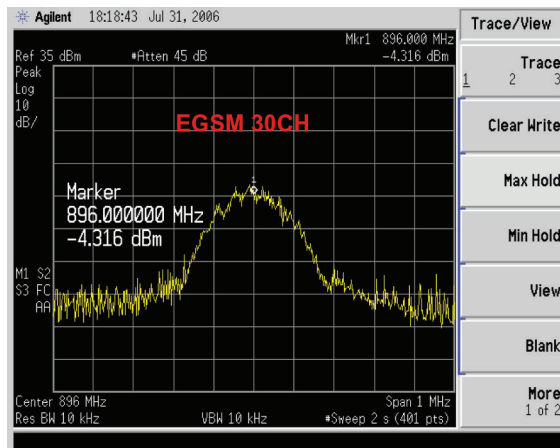


Figure 24. Transceiver Output (GMSK)

LBAND_PAM_IN (MODE: 8PSK): TP1

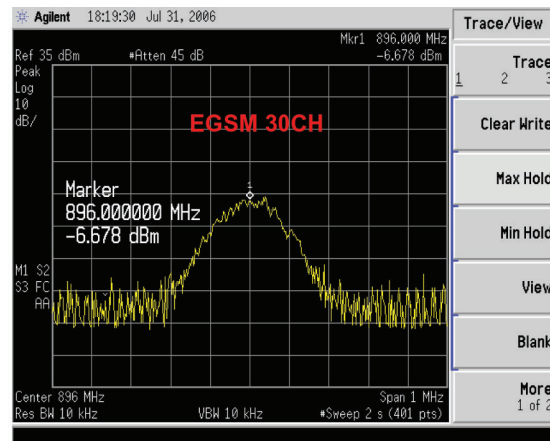


Figure 25. Transceiver Output (8PSK)

5.13.5. Checking PAM Control Signals

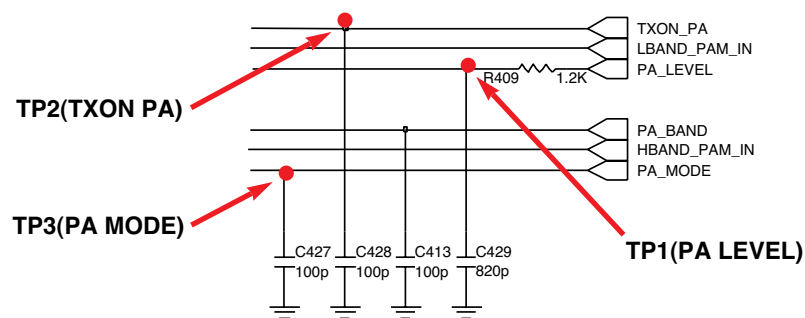


Figure 26. PAM Control Signals

Checking Points

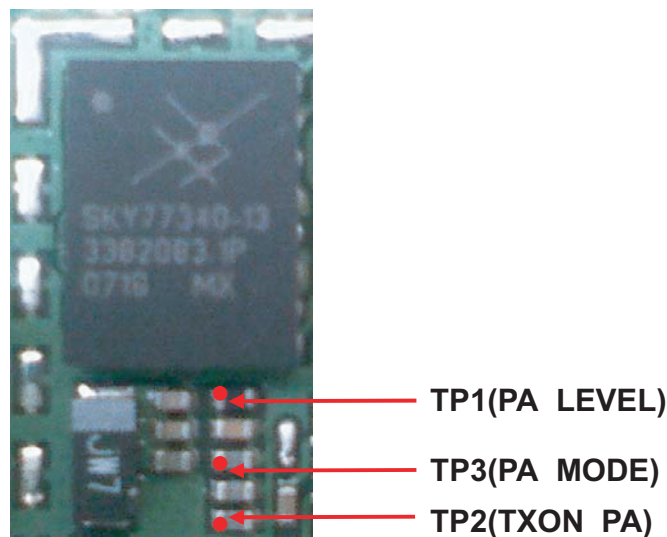


Figure 27. Transceiver Output

MODE	MODE	PA_LEVEL	TXON_PA
GMSK	LOW	Ramp Burst Control	HIGH
8PSK	HIGH	Control Amp bias	HIGH

Table 4. PAM Mode Operation

5. Trouble shooting

Checking Flow

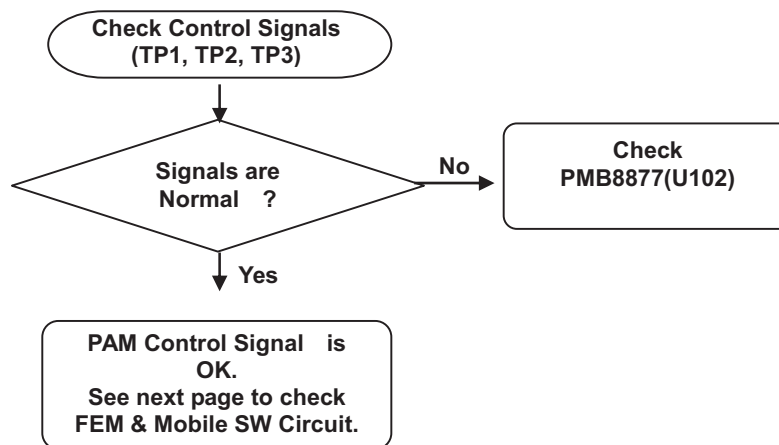


Figure 28. GSMK Control Signal

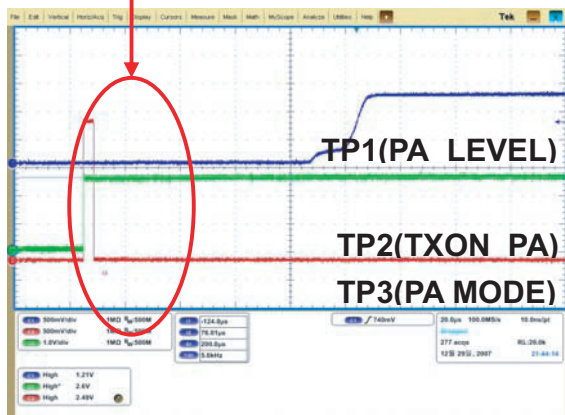
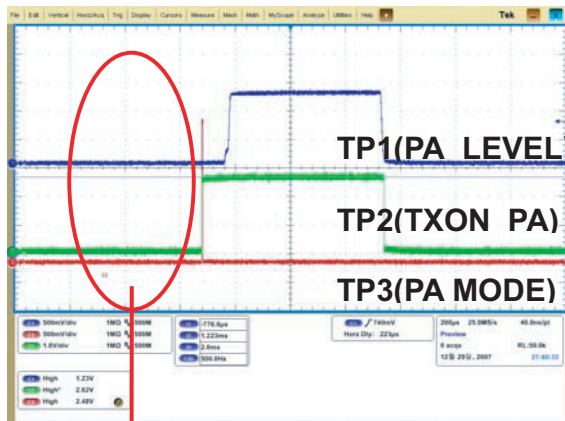
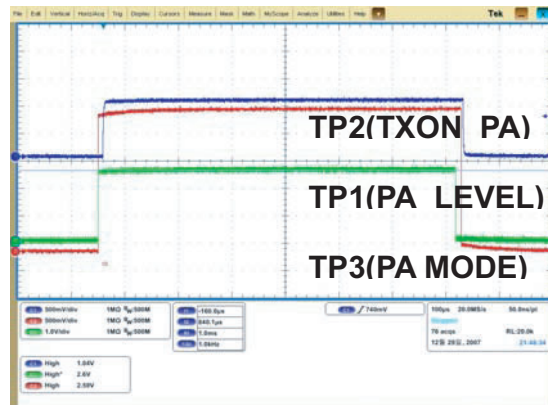


Figure 29. 8PSK Control Signal



TP3(PA MODE): C427
TP1(PA_LEVEL): R409
TP2(TXON_PA): R428

5. Trouble shooting

5.13.6. Checking FEM & Mobile SW

Mobile SW & FEM Circuit Diagram

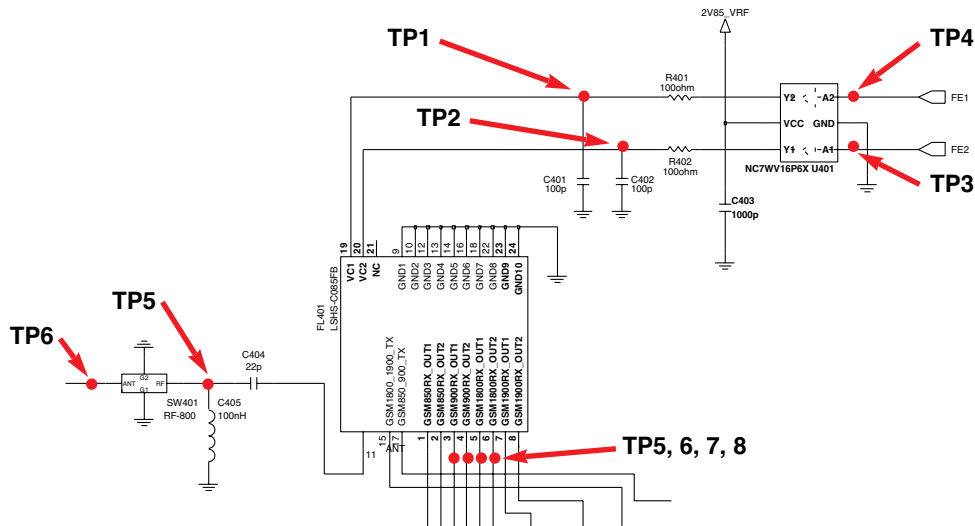


Figure 30. Mobile SW & FEM Circuit

Checking Points

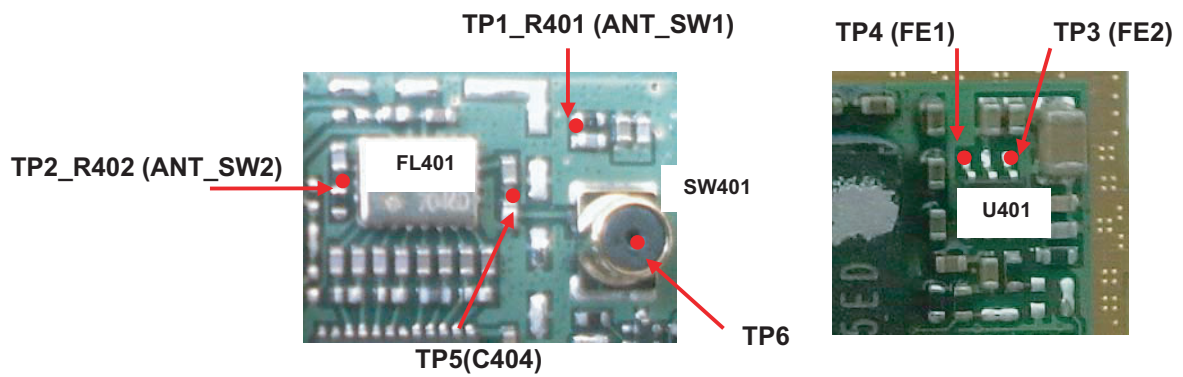


Figure 31 Mobile SW & FEM

RX Mode	GSM850	DCS	PCS
ANT_SW1	On	Off	Off
ANT_SW2	Off	On	On

Table 5. FEM TX Control Logic

5. Trouble shooting

Checking Flow

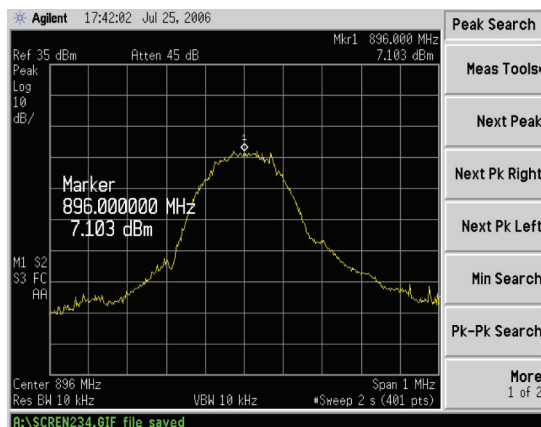
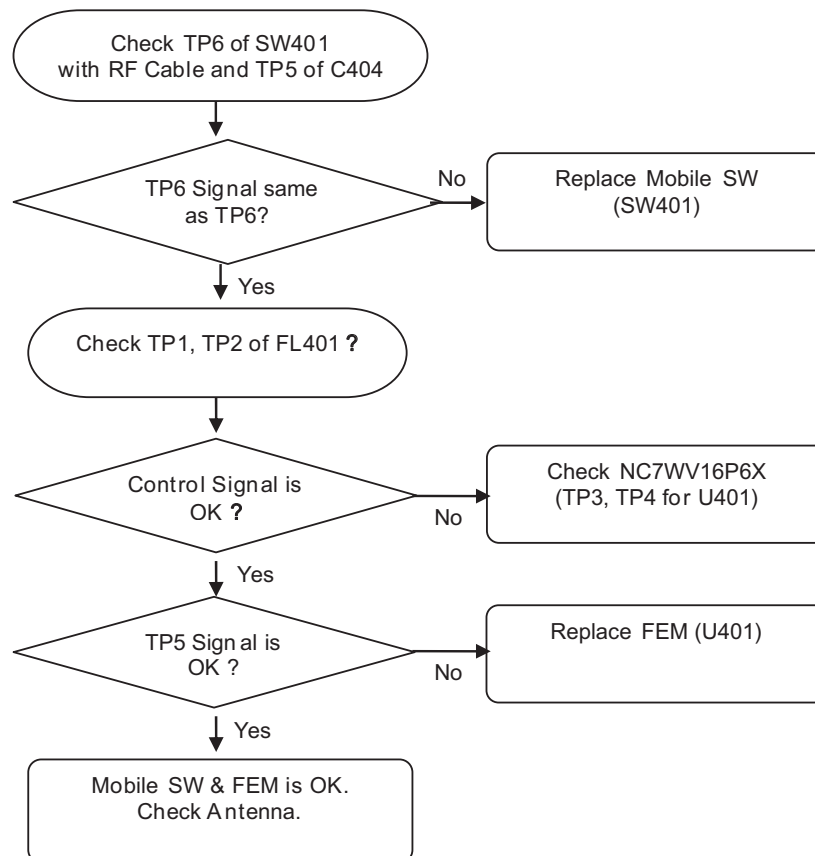


Figure 32 Mobile SW

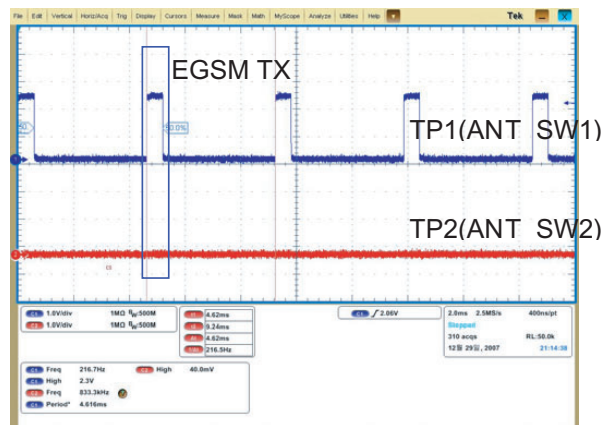


Figure 33 FEM Control Signals

6. Download & S/W upgrade

6.1. S/W download setup

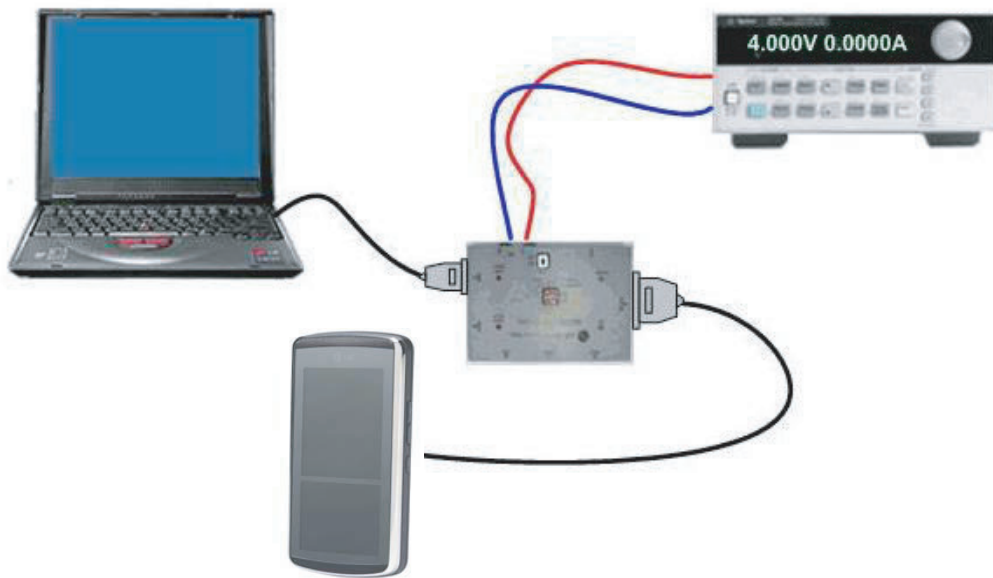


Figure S/W download & upgrade setup

Preparation

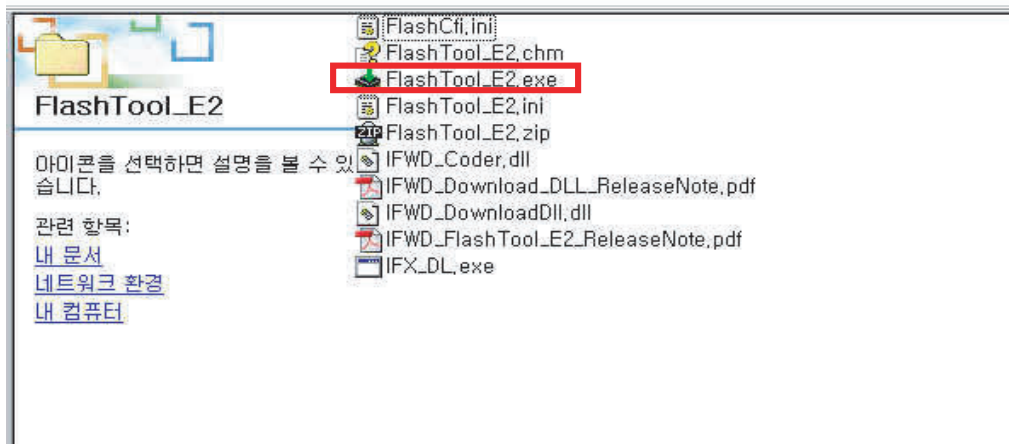
- Target terminal
- PIF-Union
- RS-232 Cable and PIF-UNION to Phone interface Cable
- Power Supply or Battery
- PC supporting RS-232 with Windows 2000 or newer.

If you are going to use battery, the voltage of the battery should be over 3.7V for stable power supplying during S/W download.

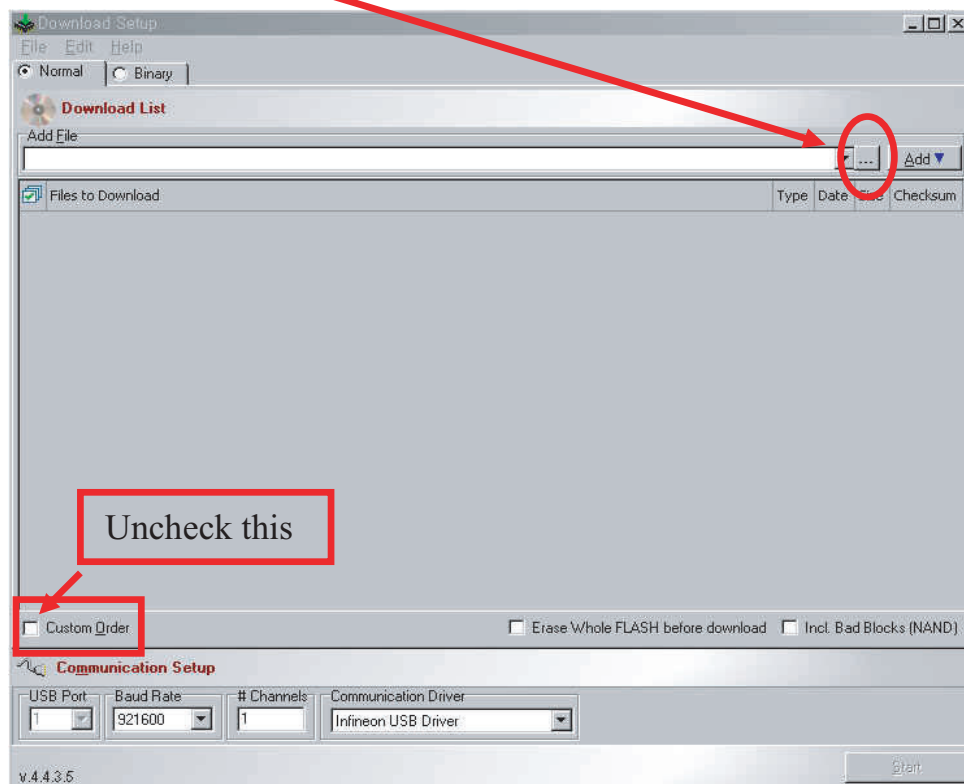
6. Download & S/W upgrade

6.2. Download program user guide

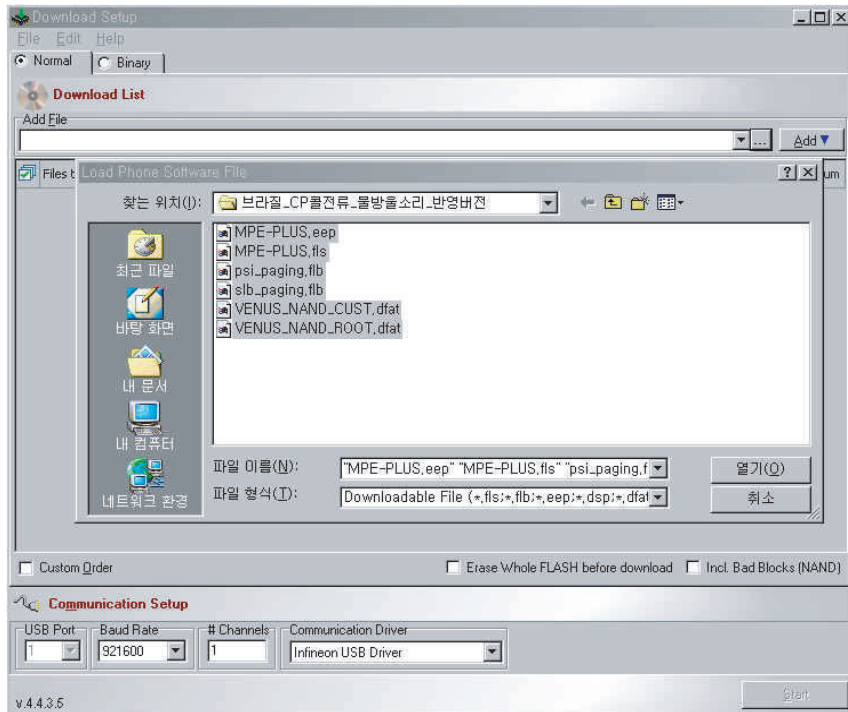
1. Double Click “Flash tool E2.exe”



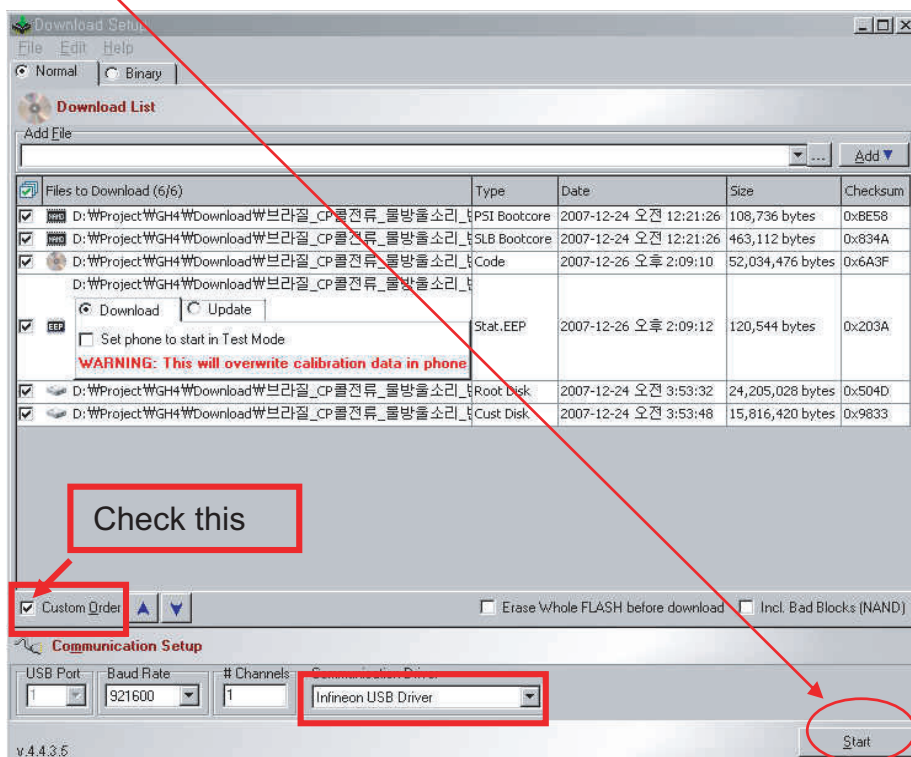
2. Click



3. Select Download Files.

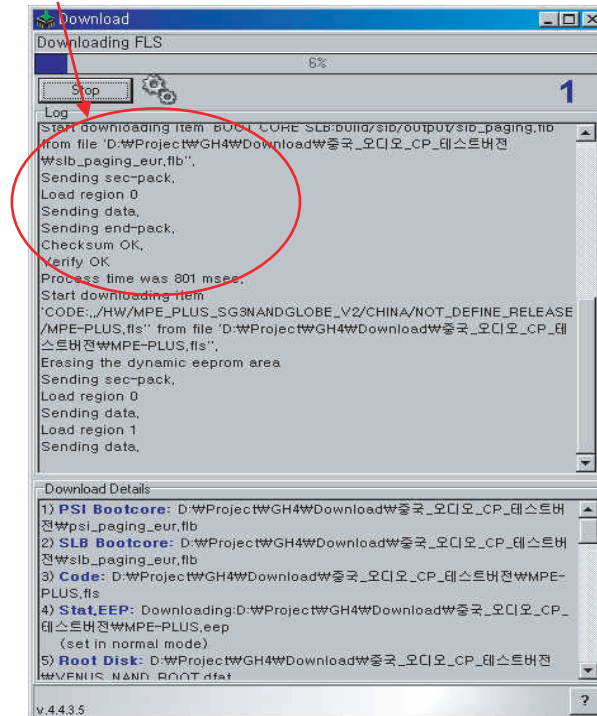


4. Press the "START" button

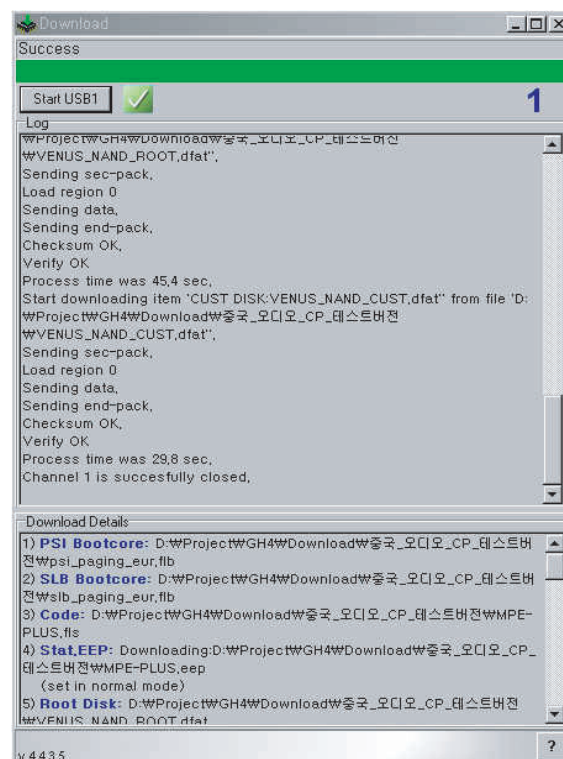


6. Download & S/W upgrade

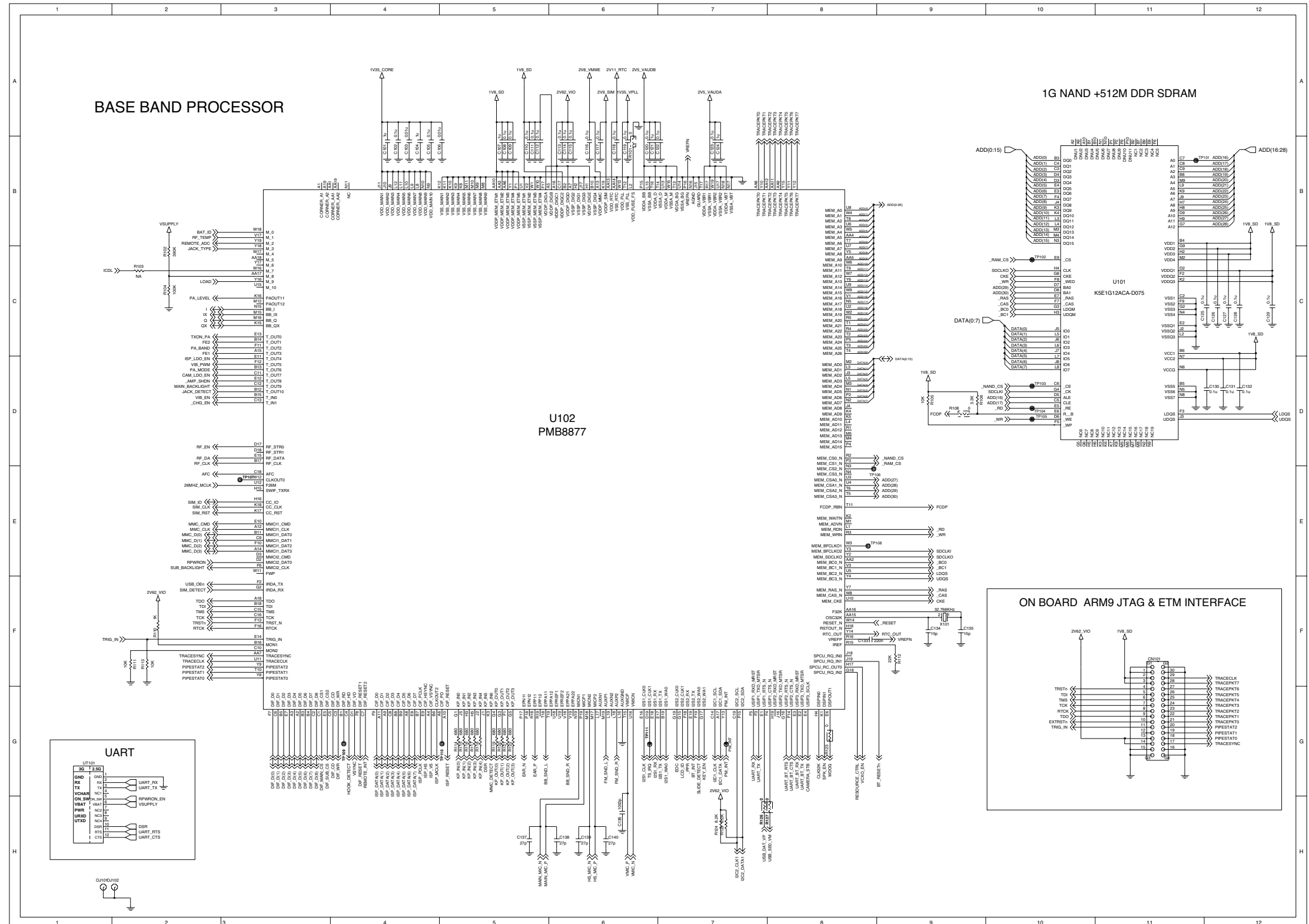
5. Click “Start USB1” connect the Phone



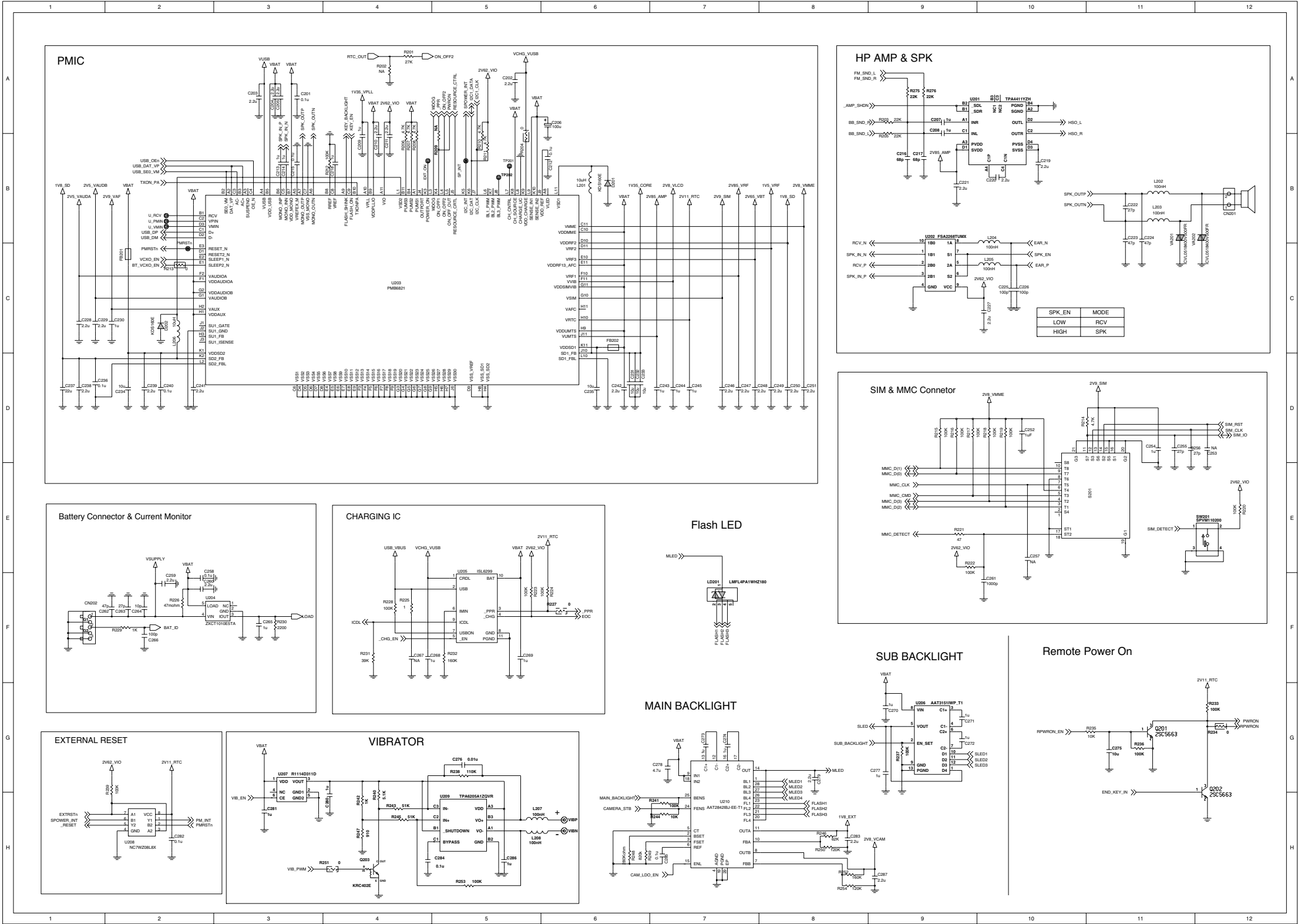
※ Downloading: END



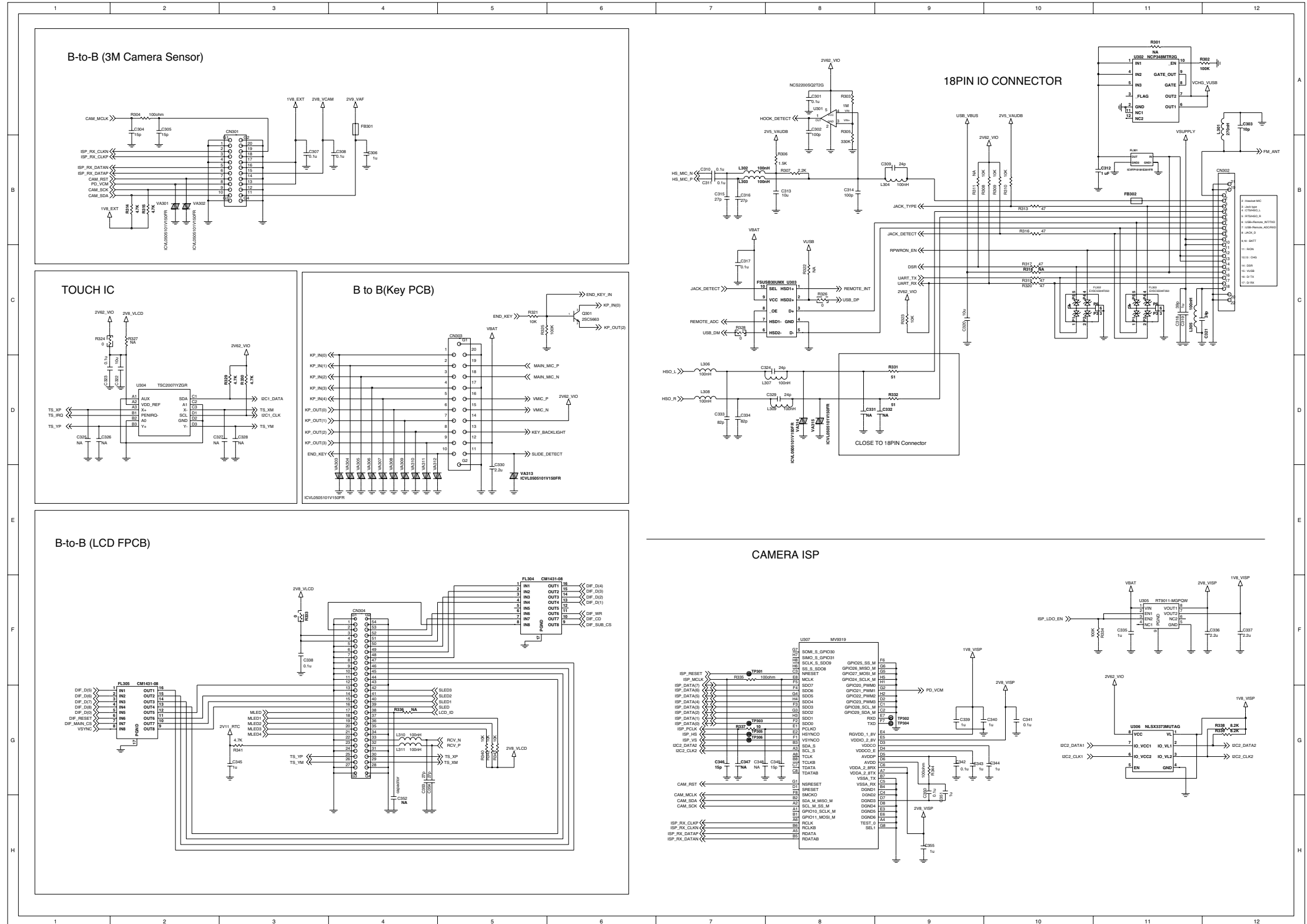
7. CIRCUIT DIAGRAM



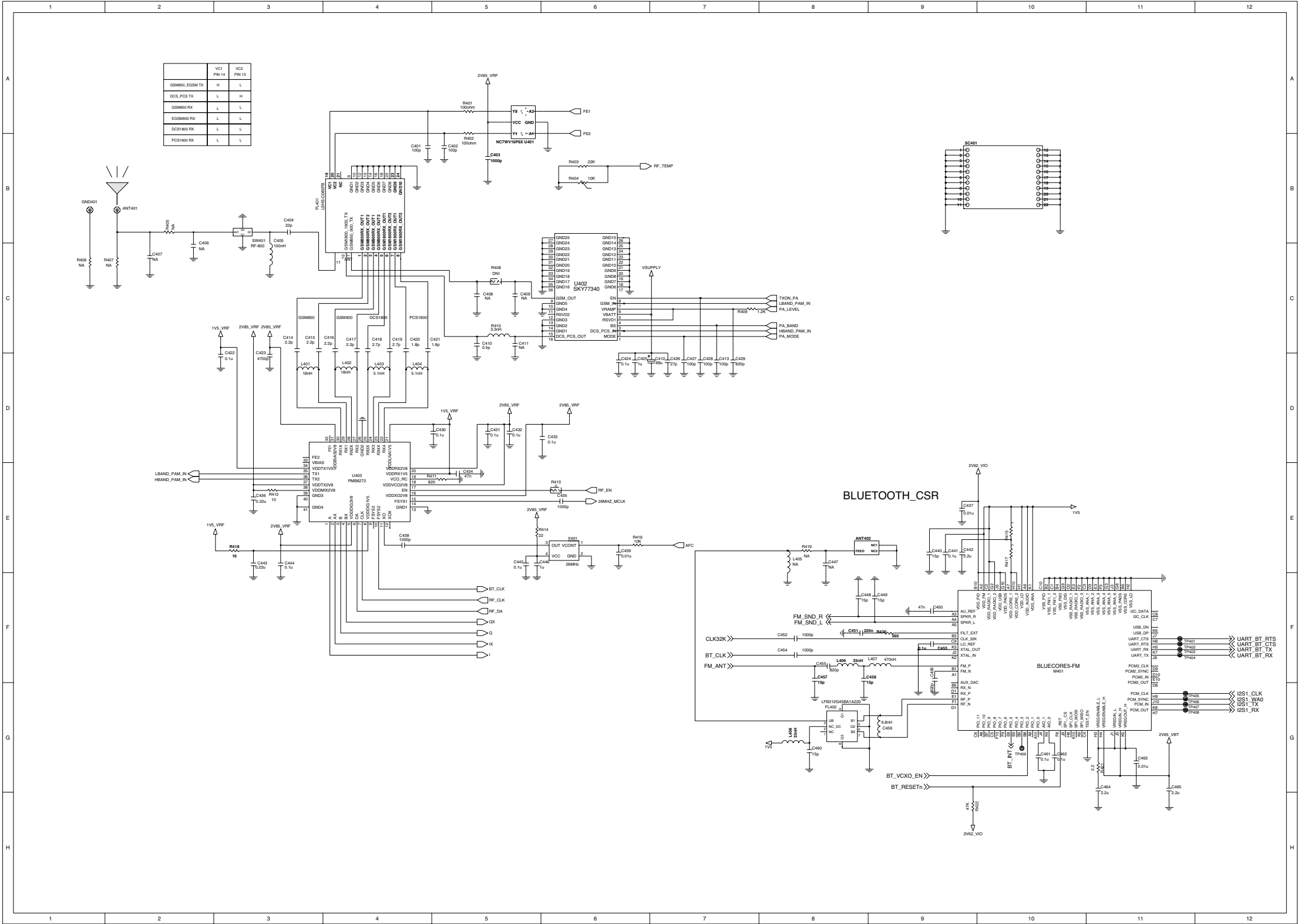
7. CIRCUIT DIAGRAM



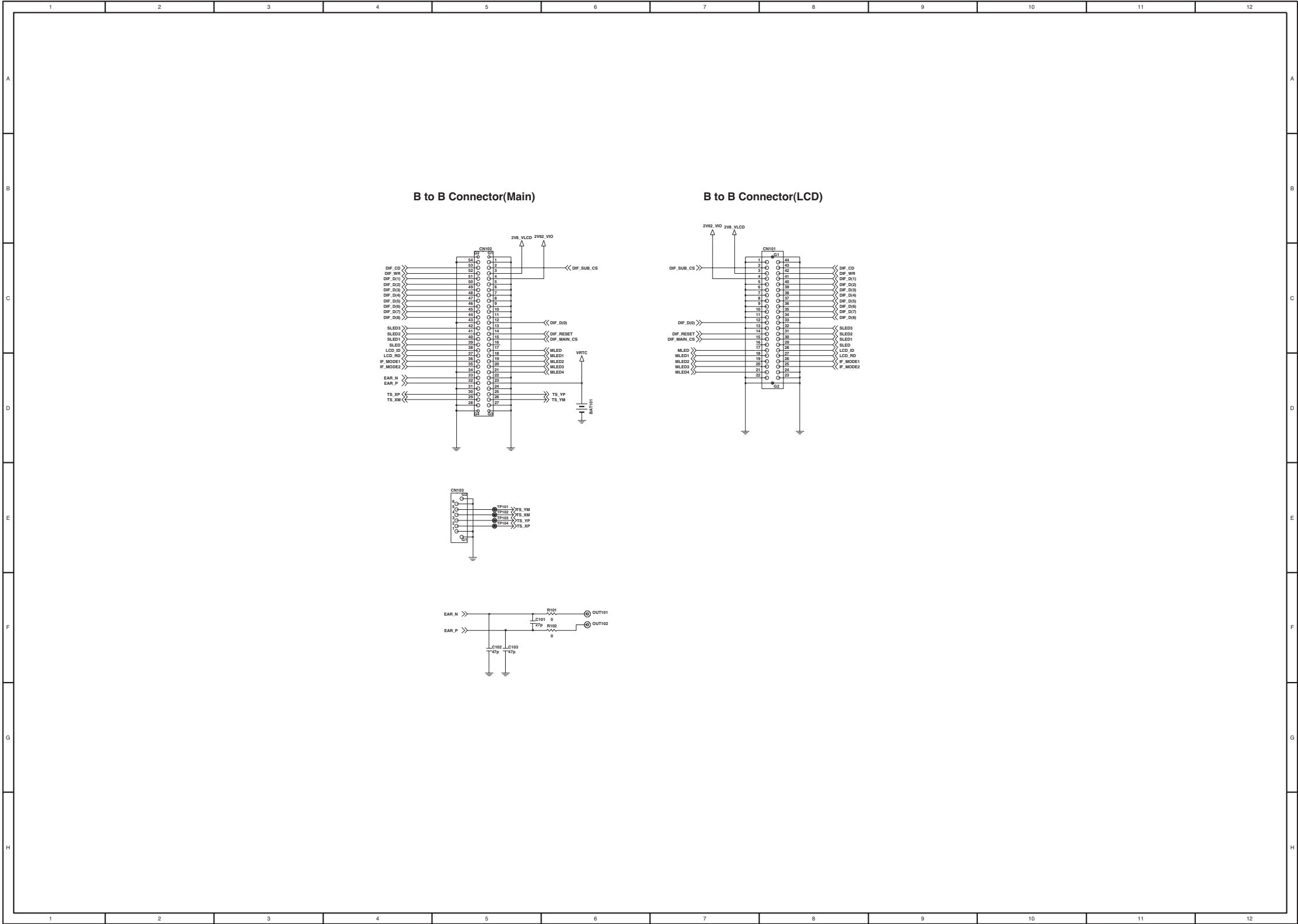
7. CIRCUIT DIAGRAM



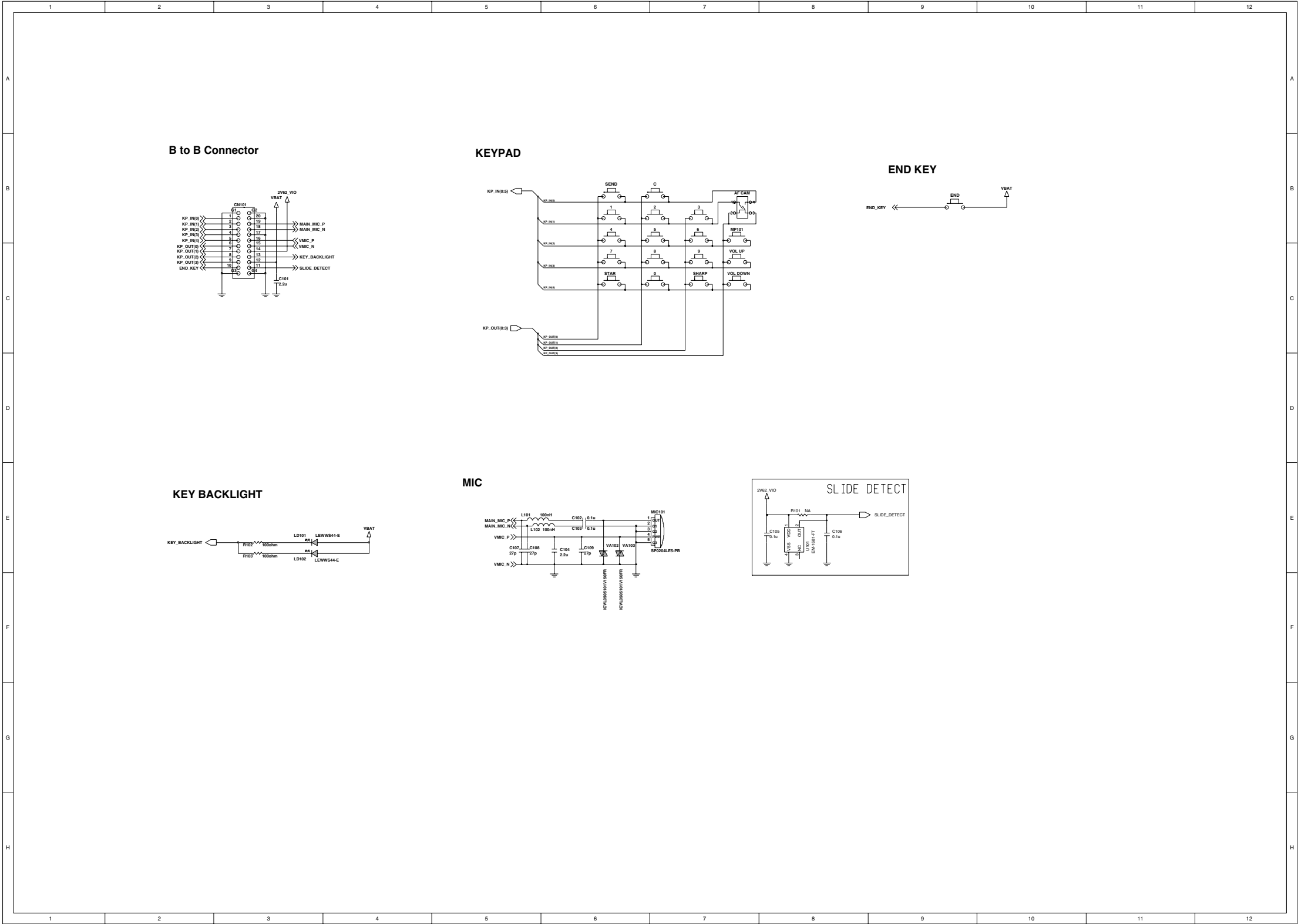
7. CIRCUIT DIAGRAM



7. CIRCUIT DIAGRAM

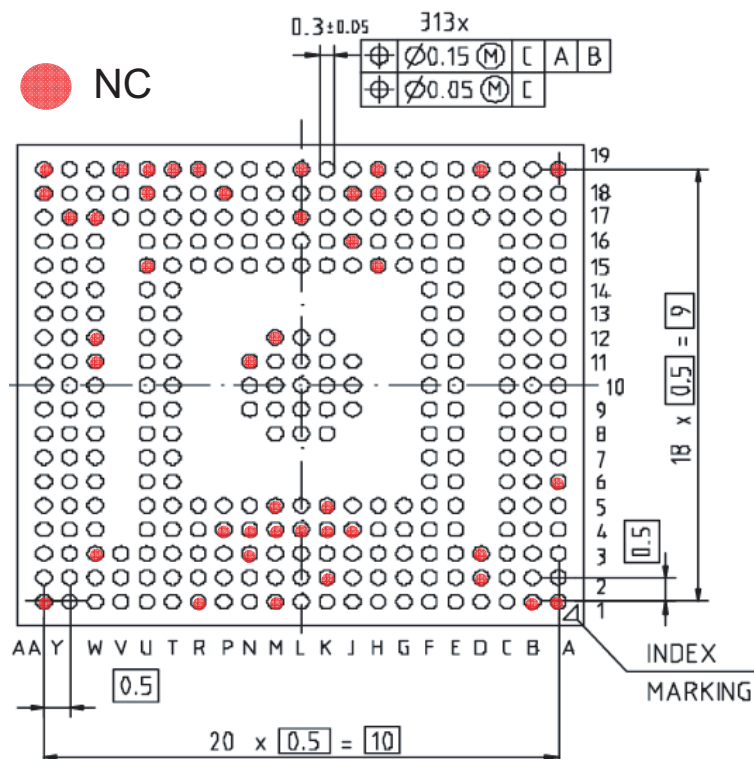
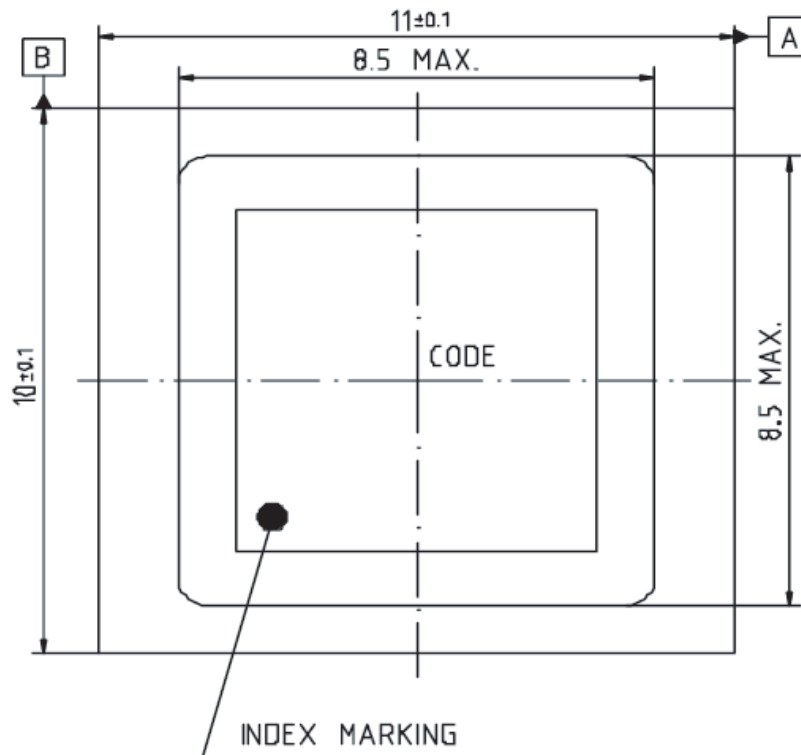


7. CIRCUIT DIAGRAM

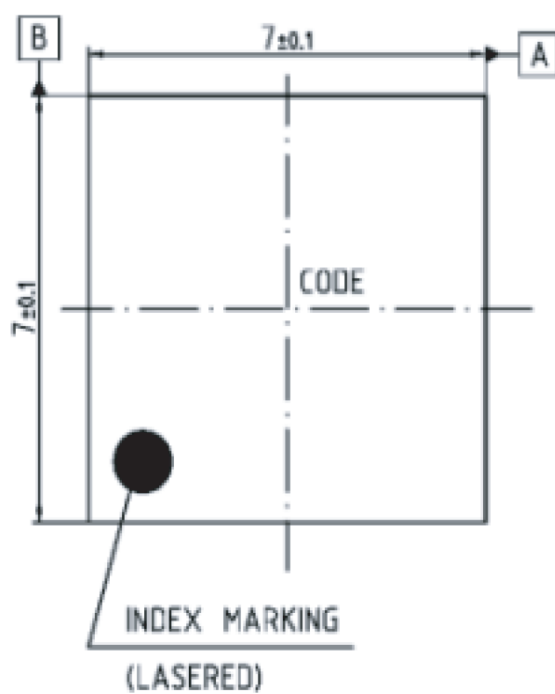
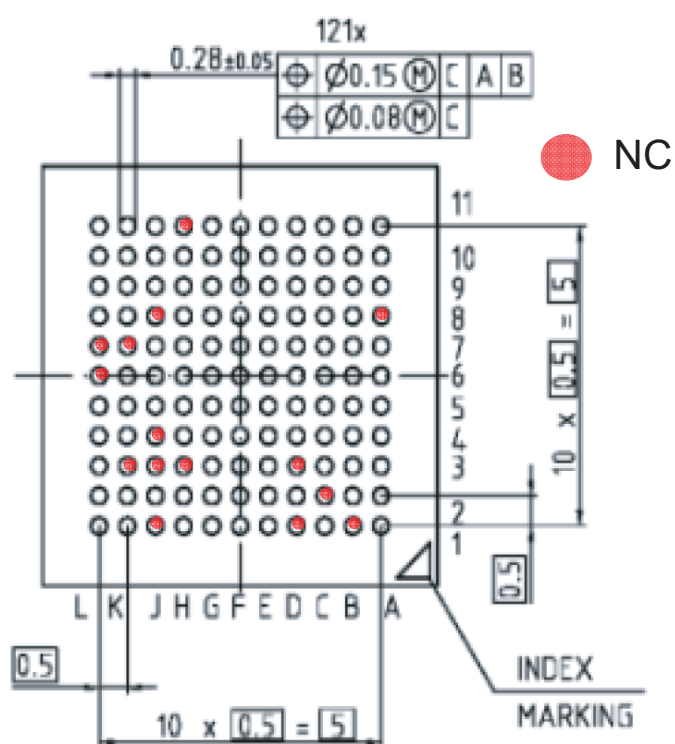


8. BGM Pin Map

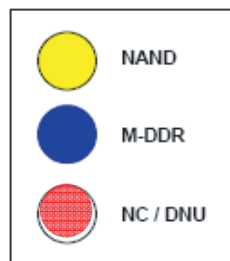
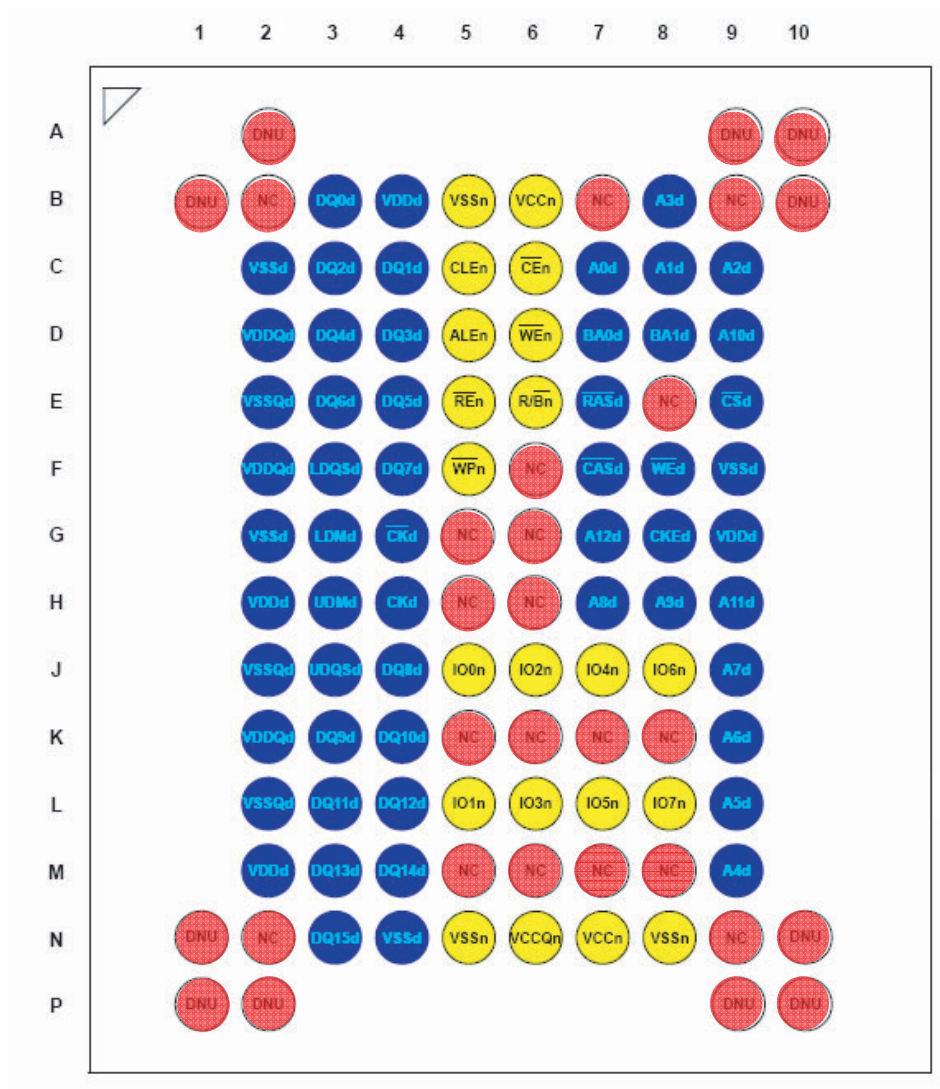
PMB8877(S-Gold3) - U102



PMB6821(SM3-PMIC) - U203



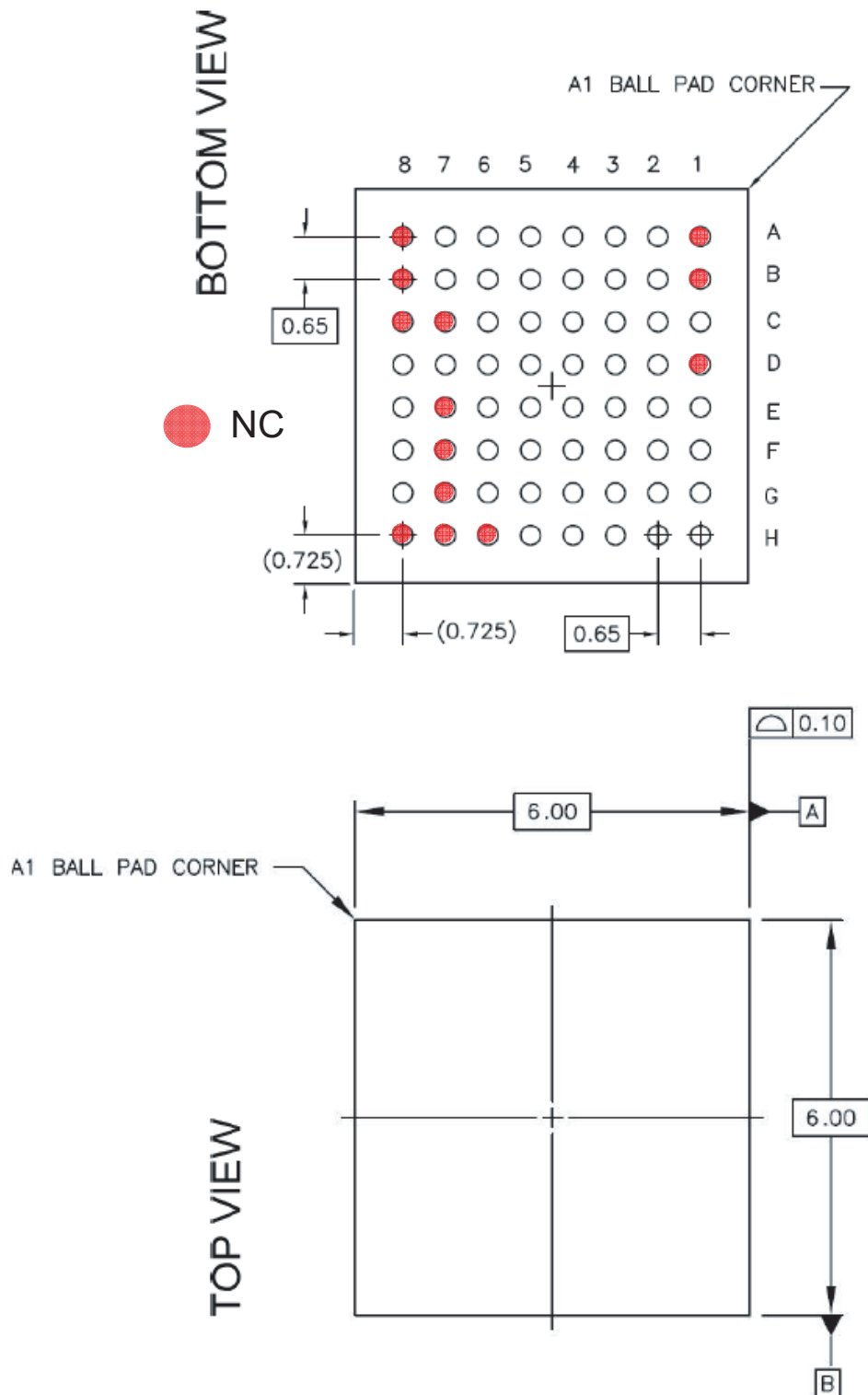
K5E1G12ACA(Memory) - U101



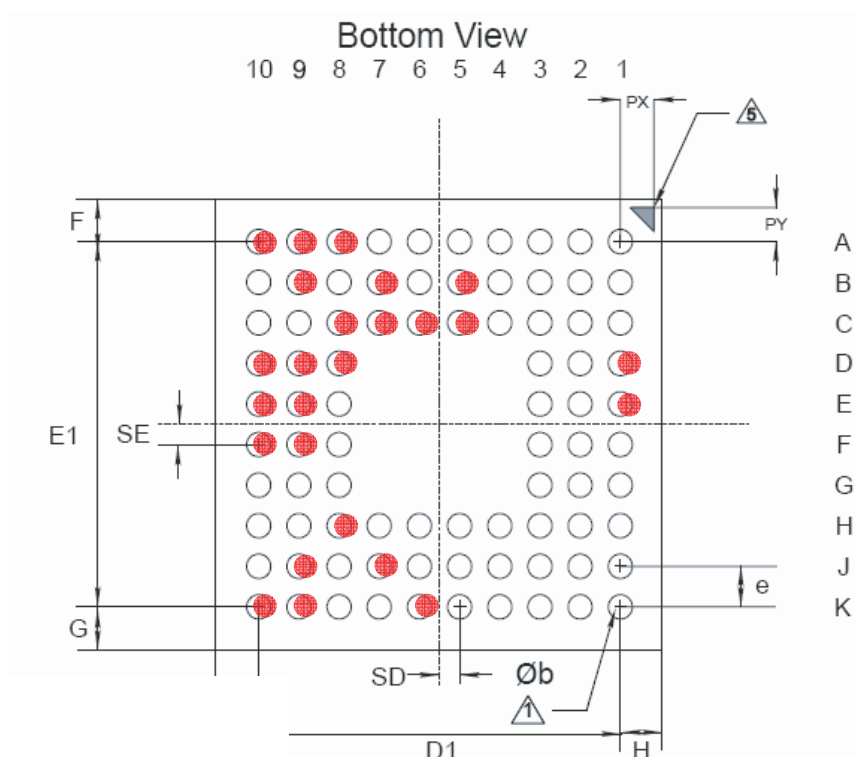
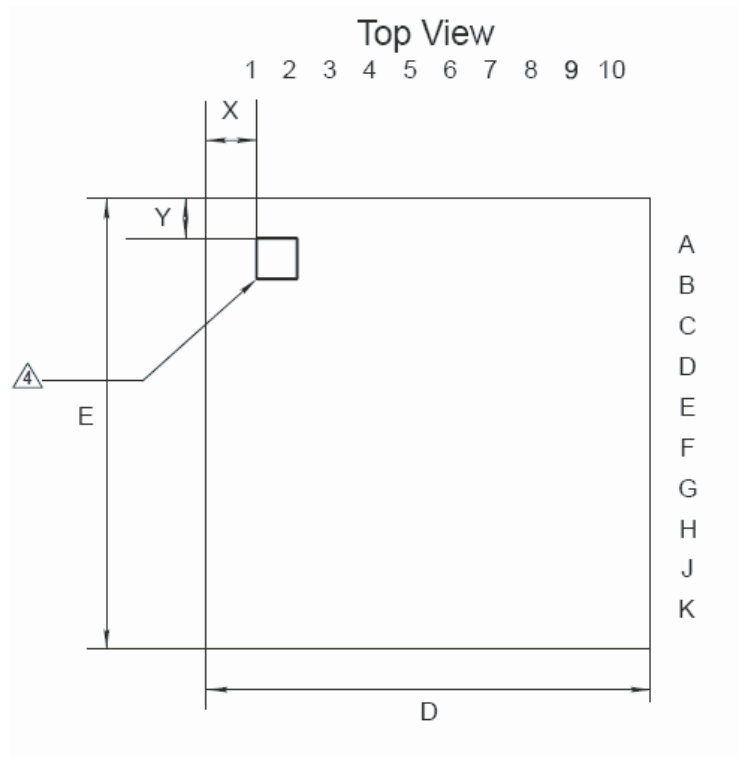
107 FBGA: Top View (Ball Down)

8. BGM Pin Map

MV9319(ISP) - U307

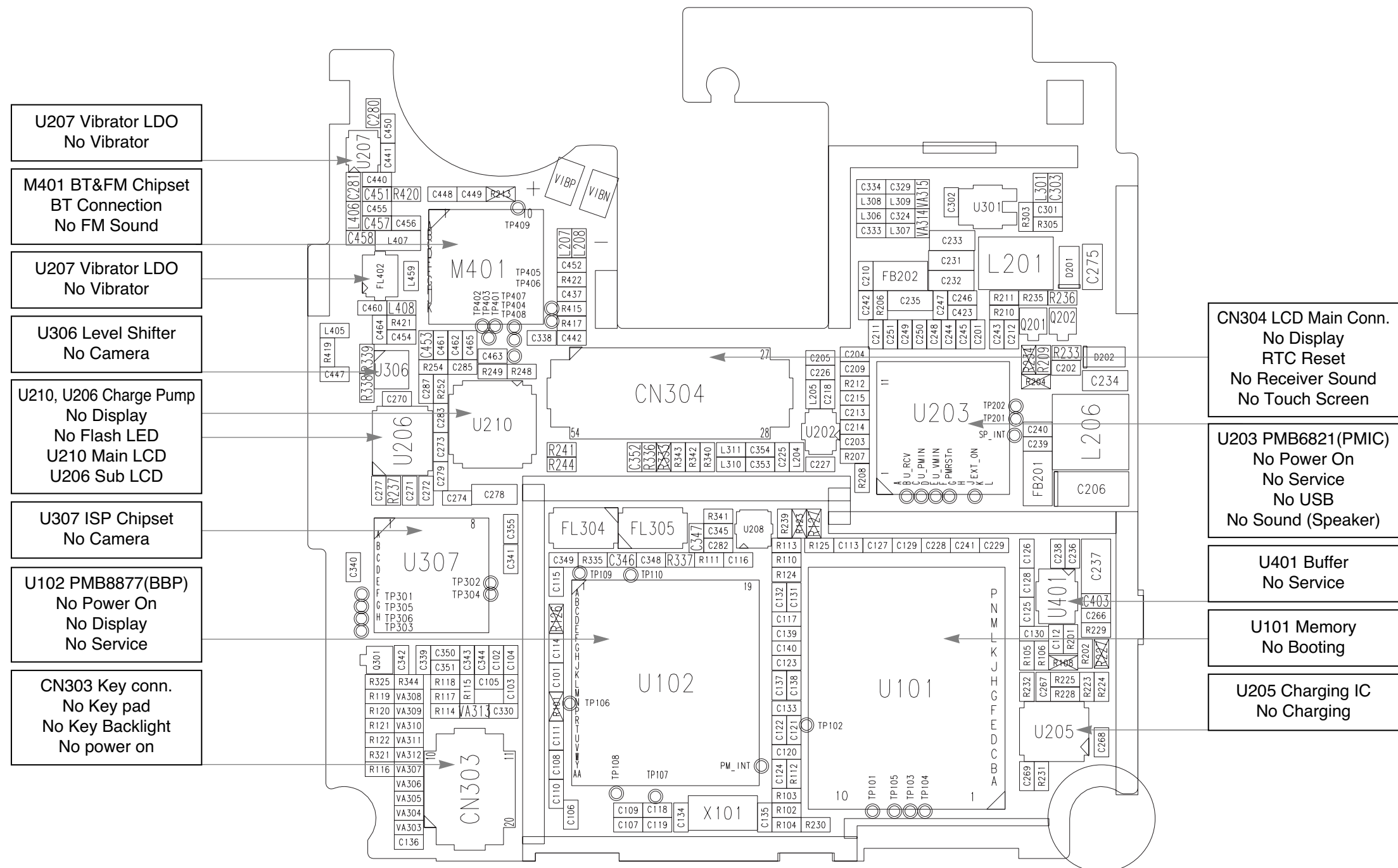


BC51E129A01(BT + FM) - M401



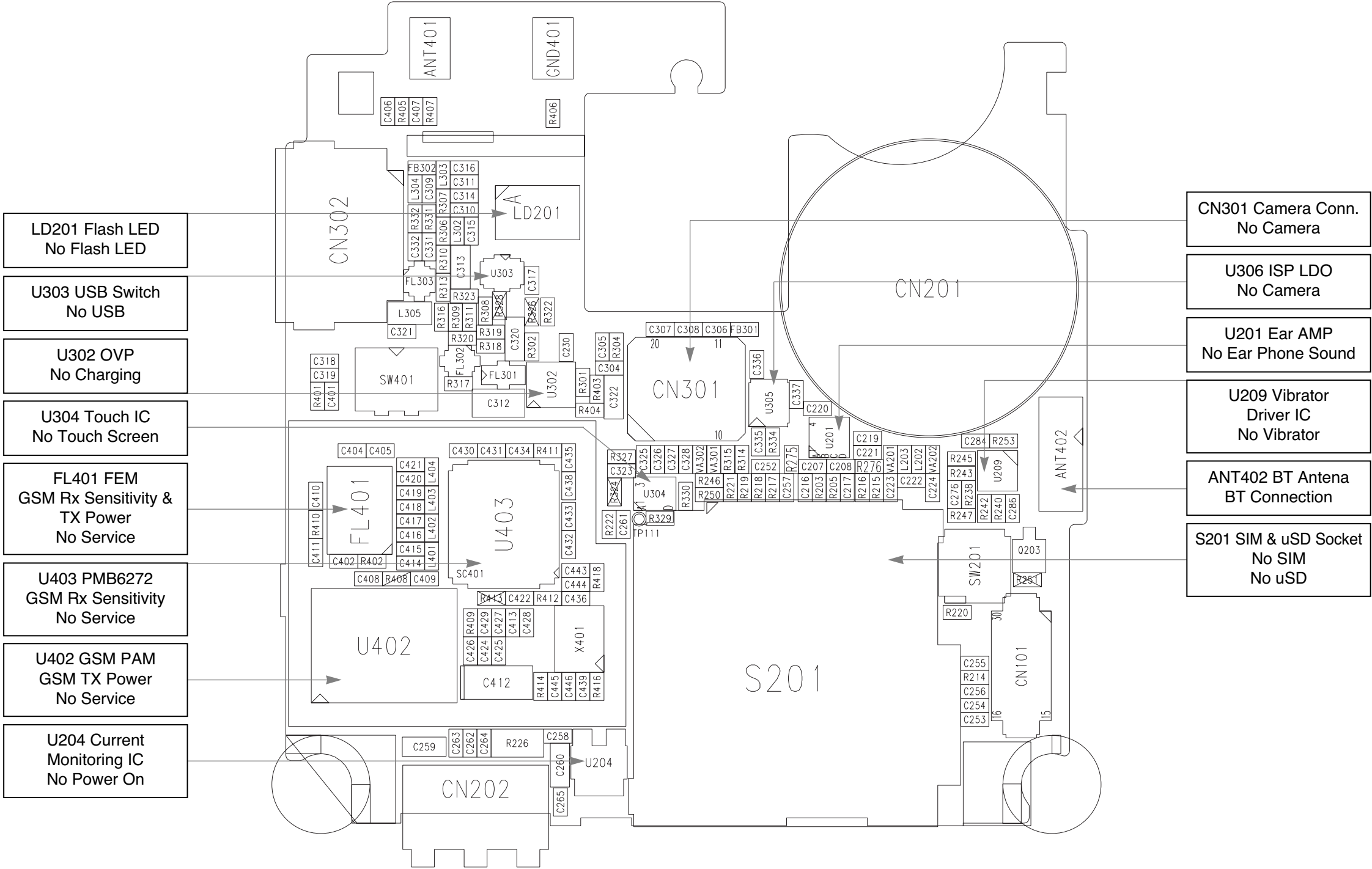


9. PCB LAYOUT



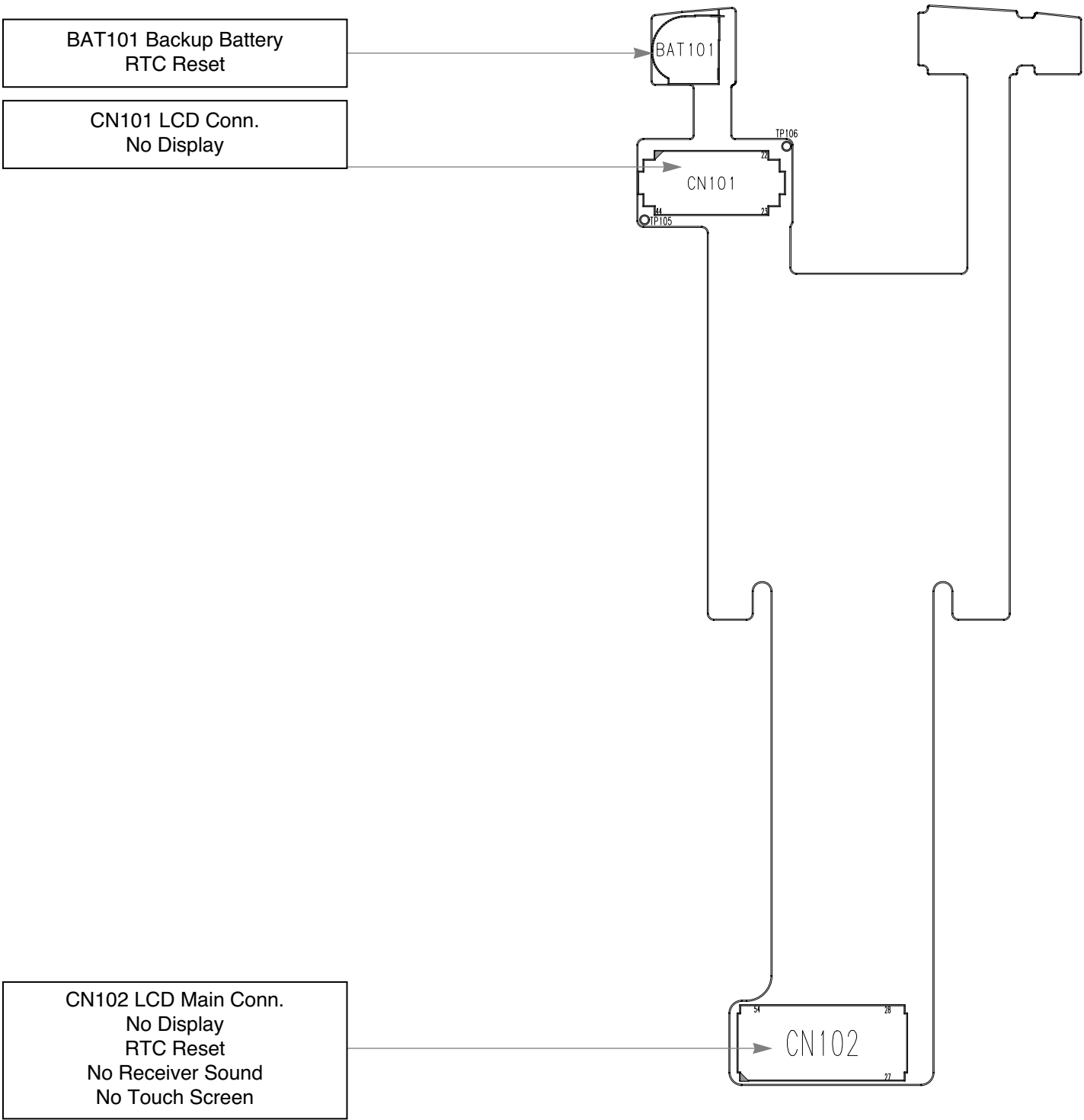
KF600d-SPFY0163101-1.0-TOP

9. PCB LAYOUT

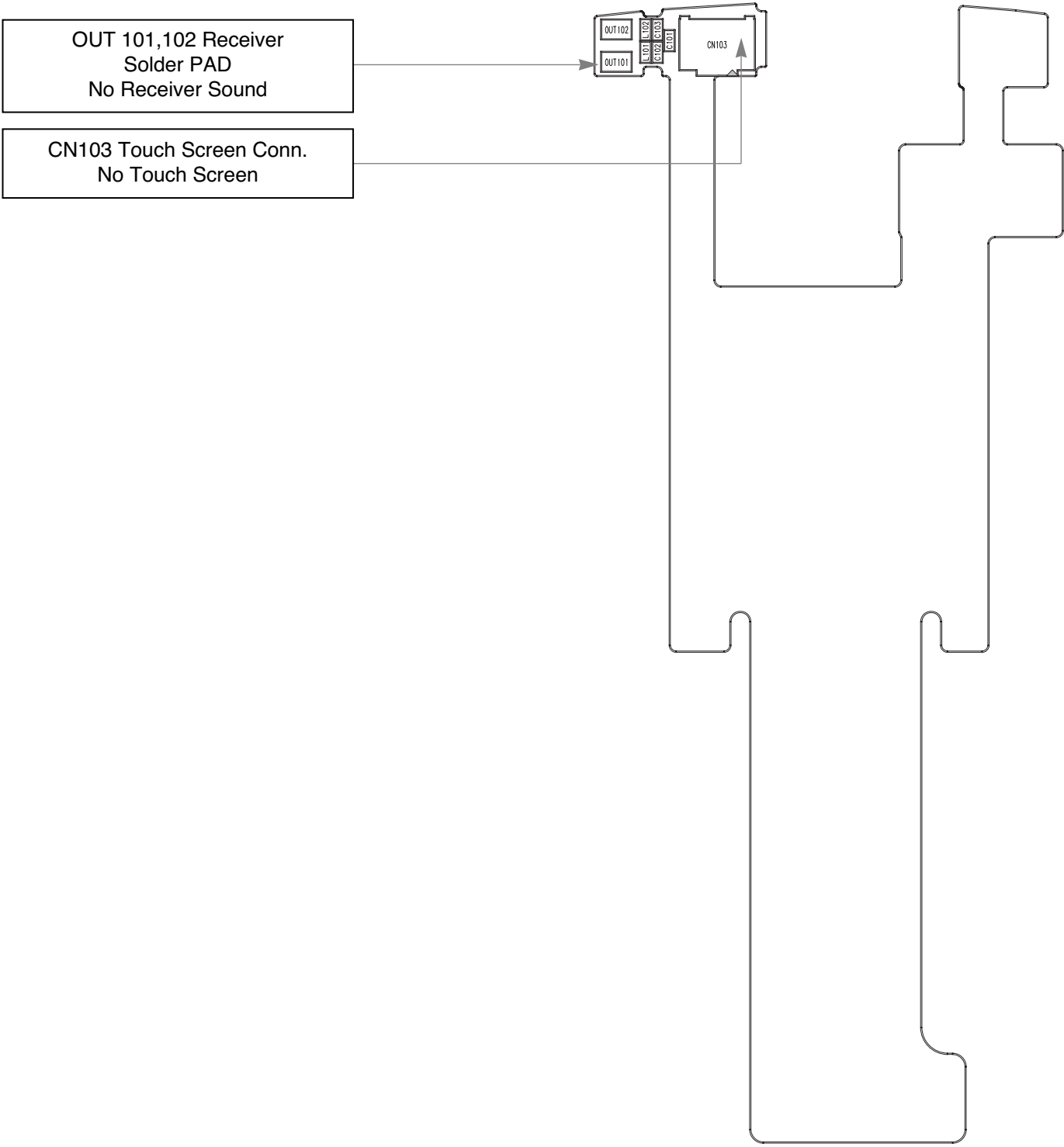


KF600d-SPFY0163101-1.0-BTM

9. PCB LAYOUT

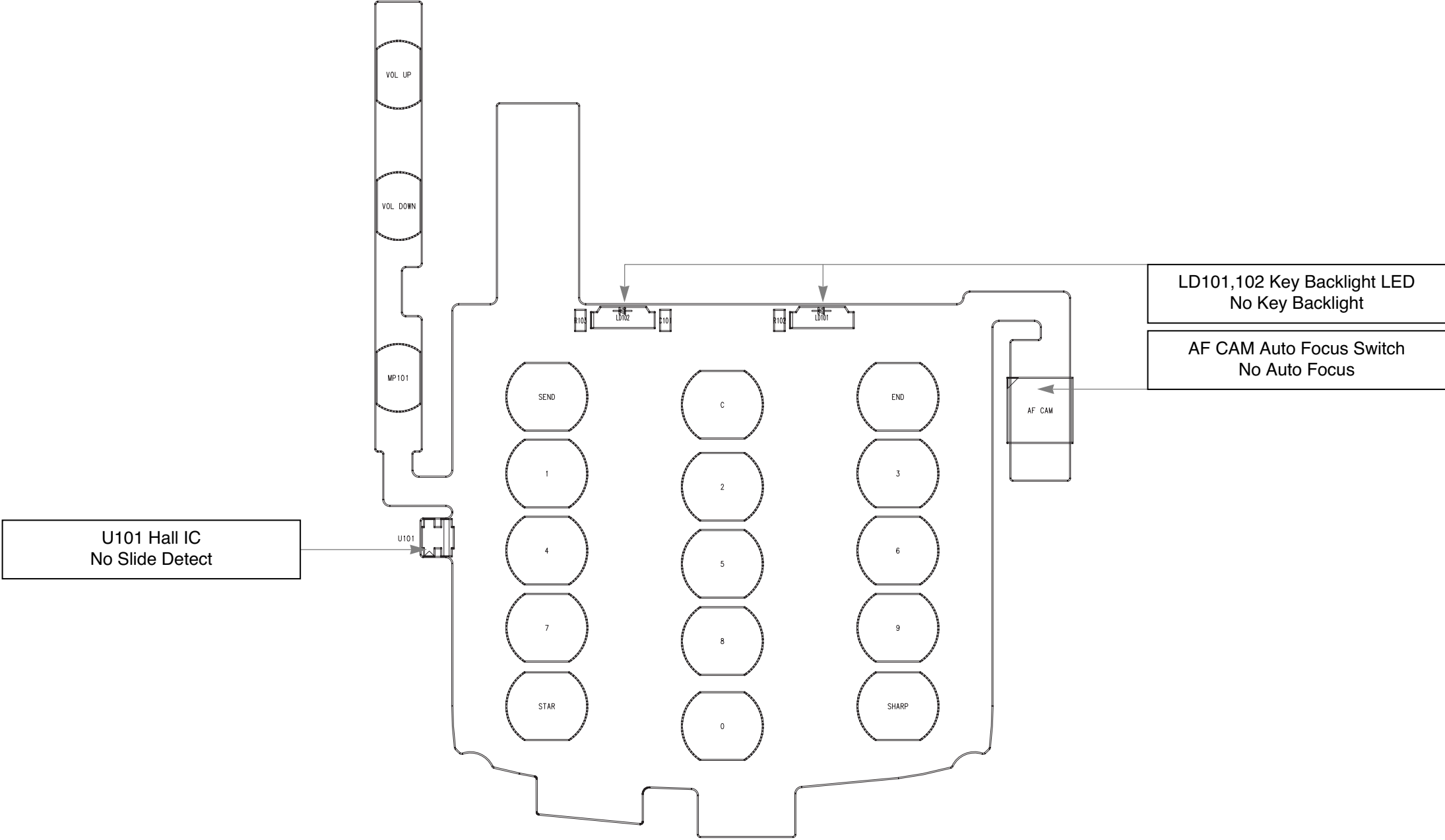


9. PCB LAYOUT



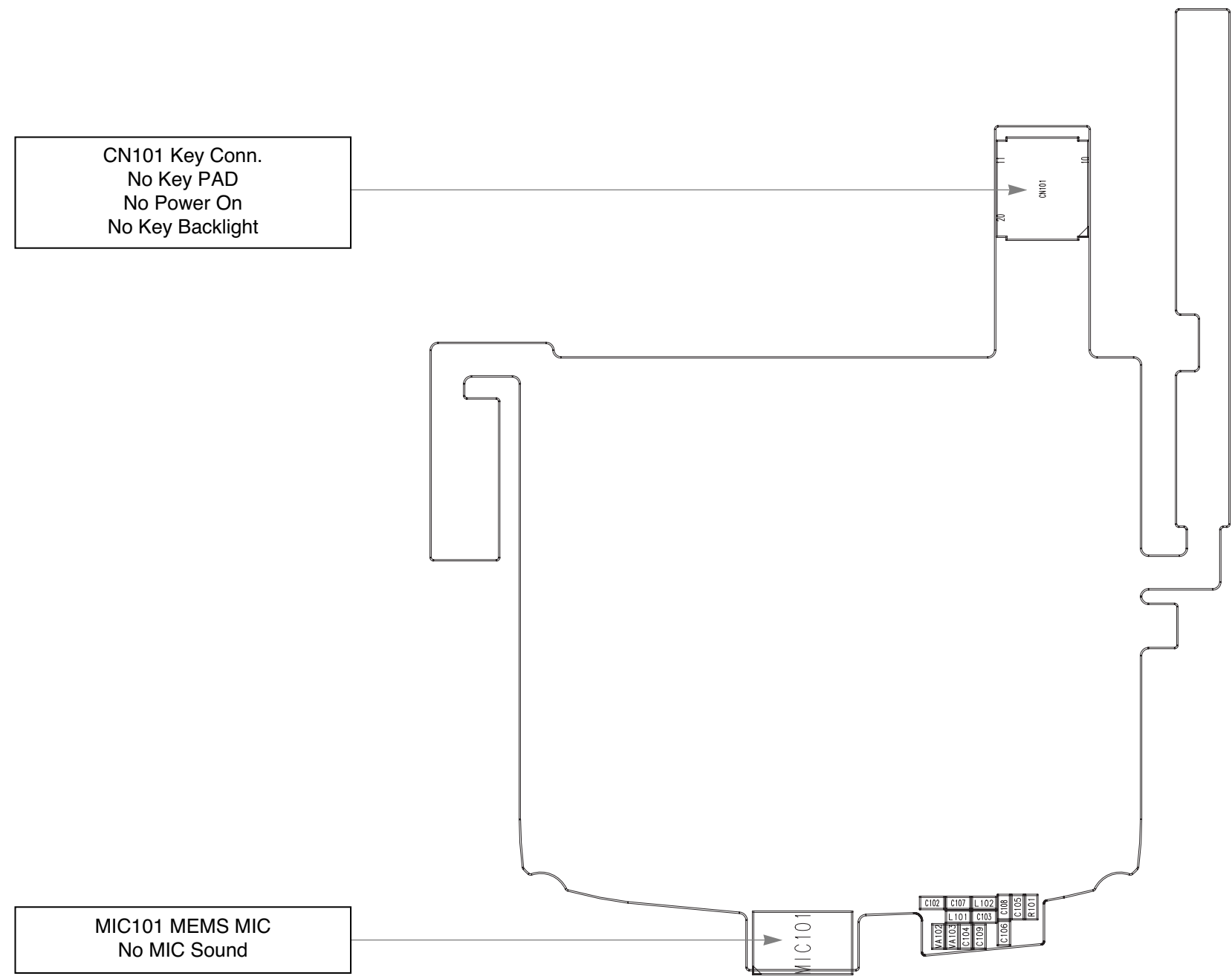
KF600d-F_LCD-SPCY0114701-1.0-B0T

9. PCB LAYOUT



KF600d-F_KEY-SPCY0114801-1.0

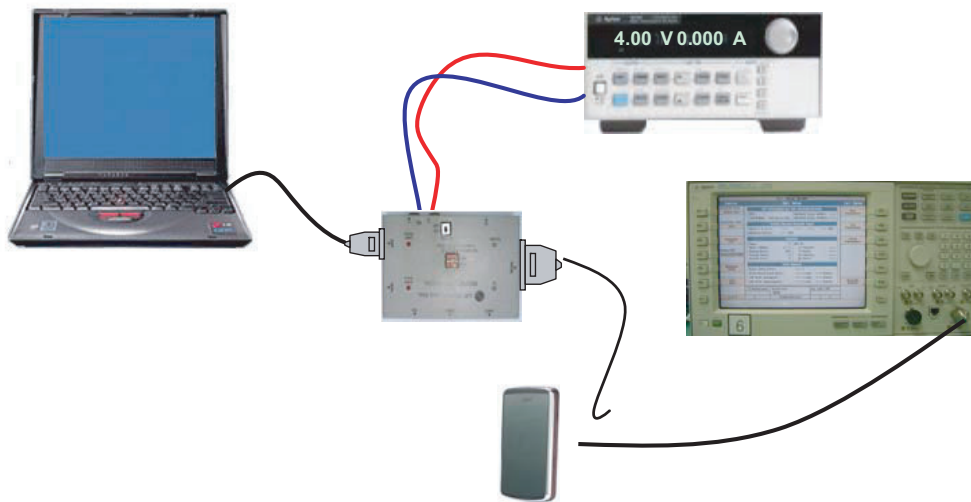
9. PCB LAYOUT



KF600d-F_KEY-SPCY0114801-1.0

10. RF Calibration

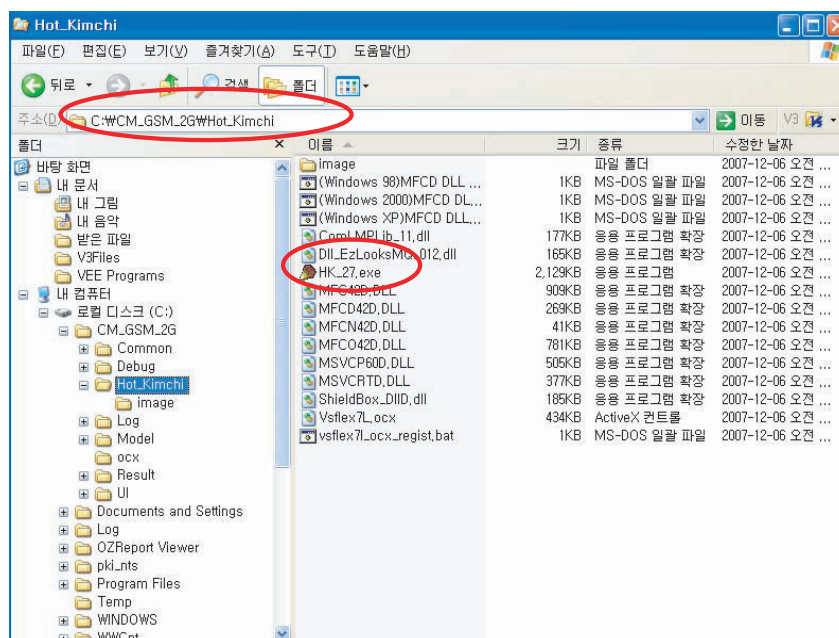
10.1. Test Equipment Setup



10.2. Calibration Step

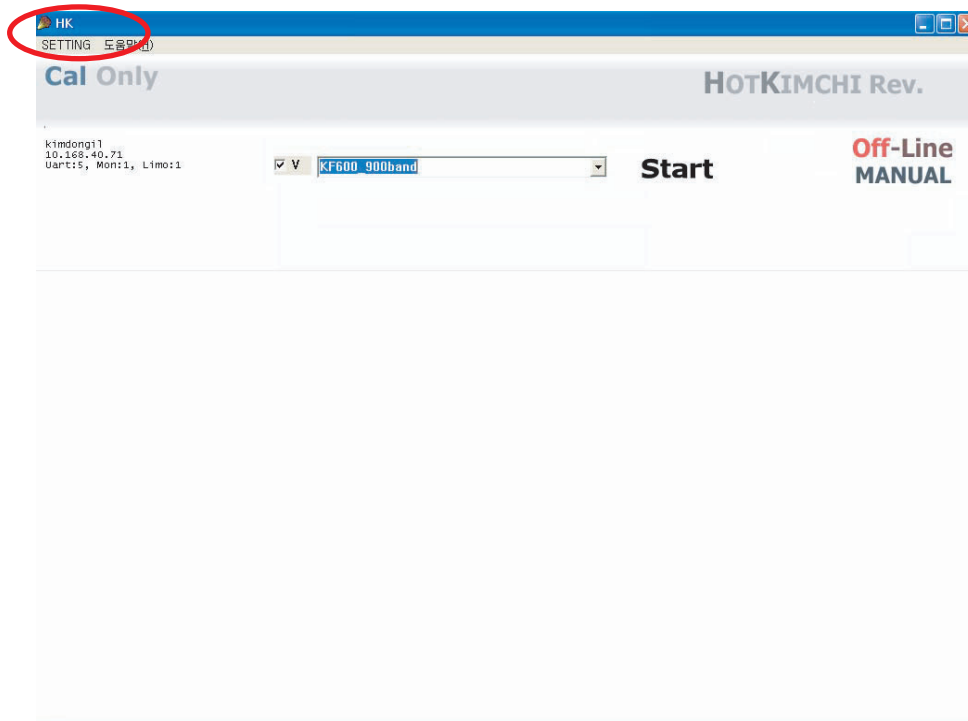
10.2.1. Turn on the Phone.

10.2.2. Execute “HK_27.exe”

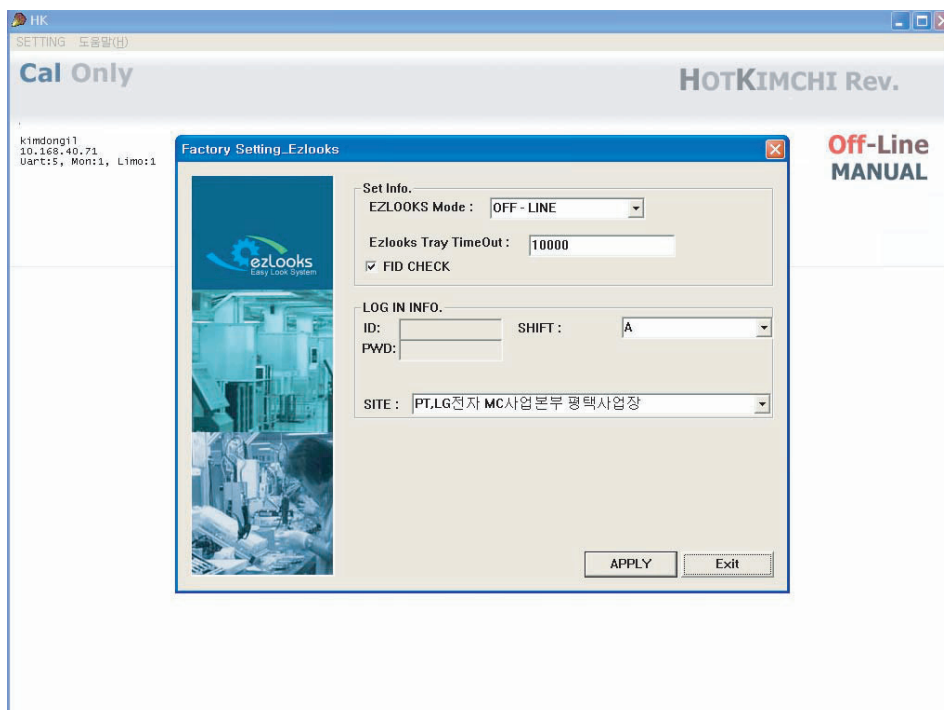


10. RF Calibration

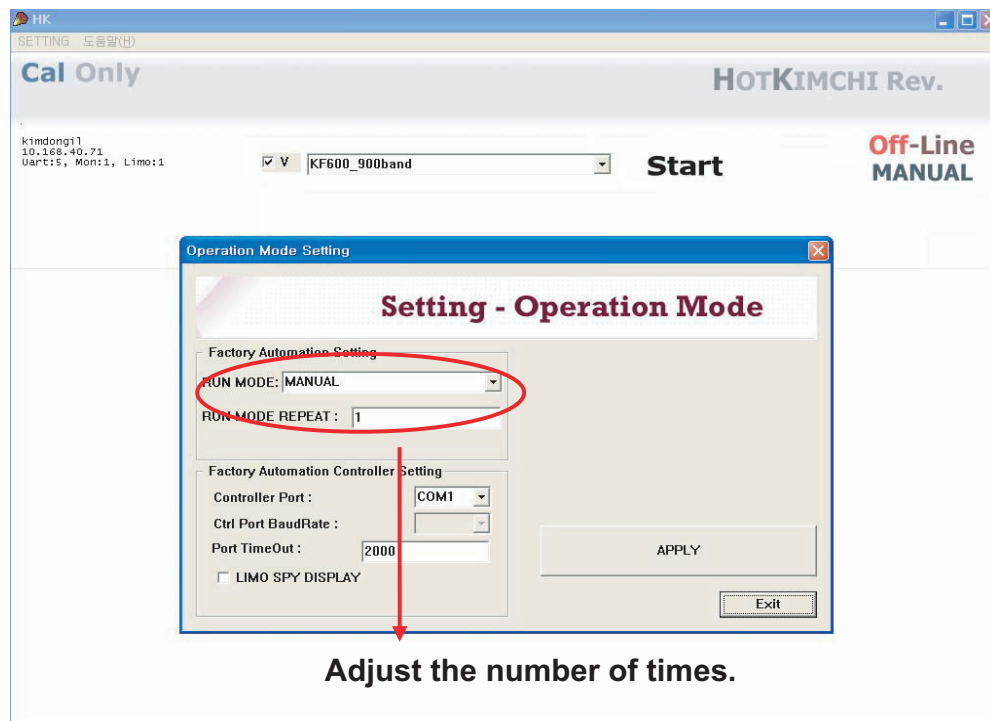
10.2.3. Click “SETTING” Menu



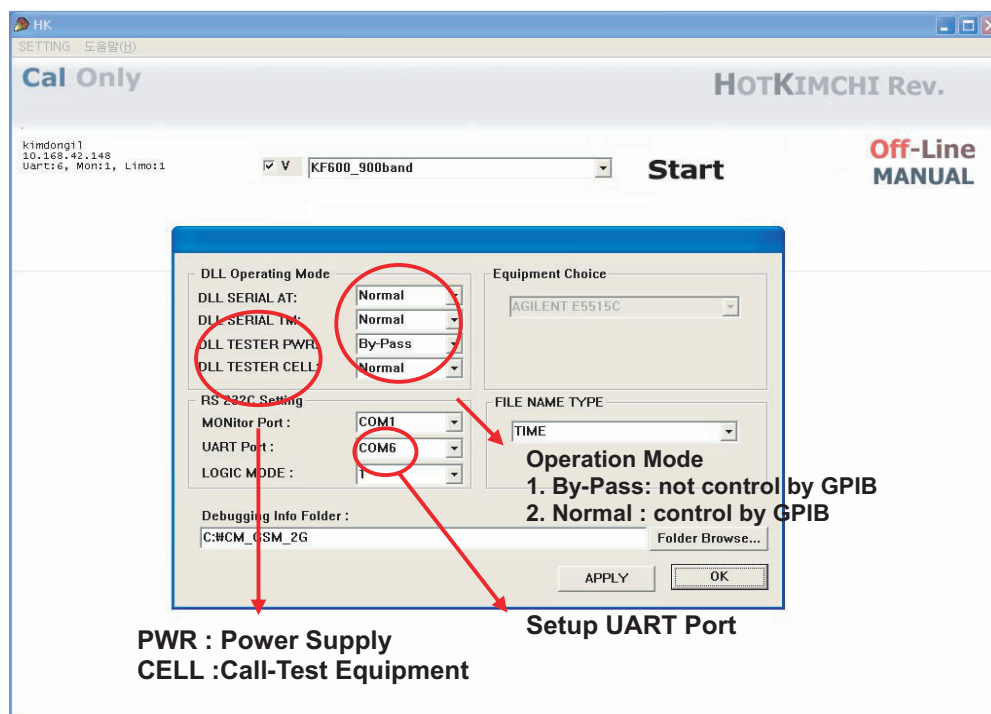
10.2.4. Setup “Ezlooks” menu such as the following figure



10.2.5. Setup “Line System” menu such as the following figure



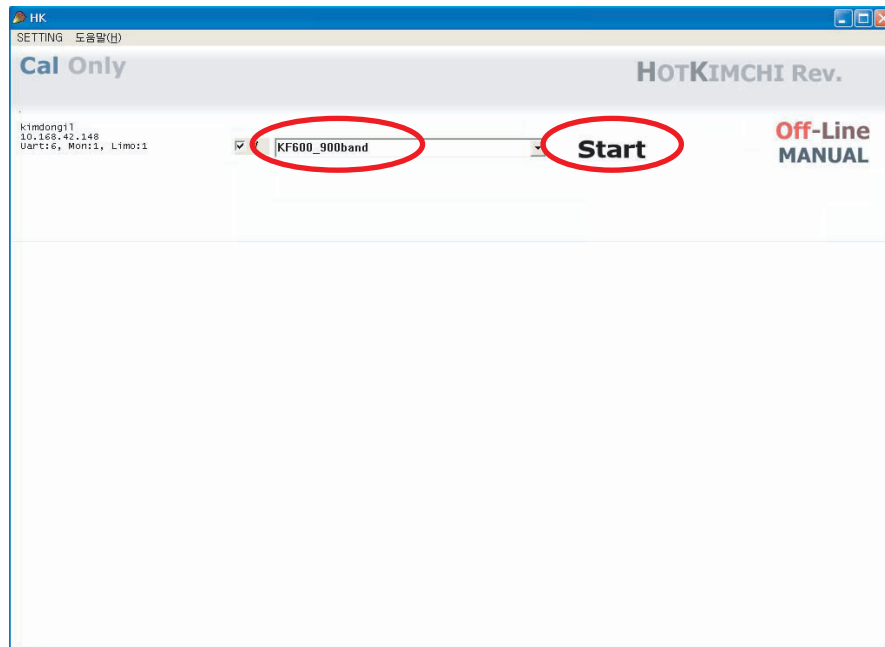
10.2.6. Setup Logic operation such as the following figure.



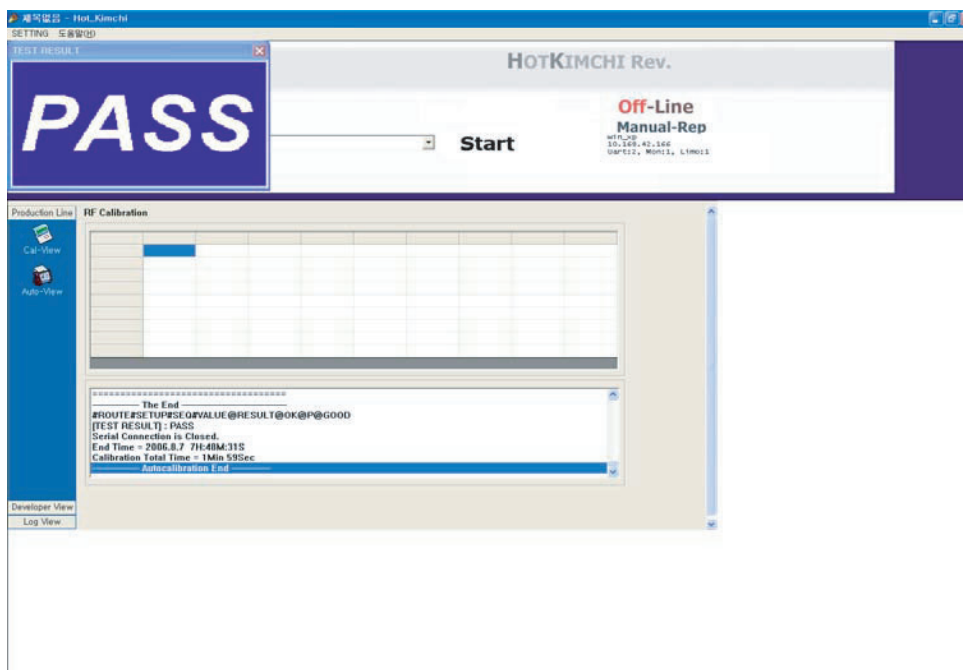
10. RF Calibration

10.2.7. Select “MODEL”

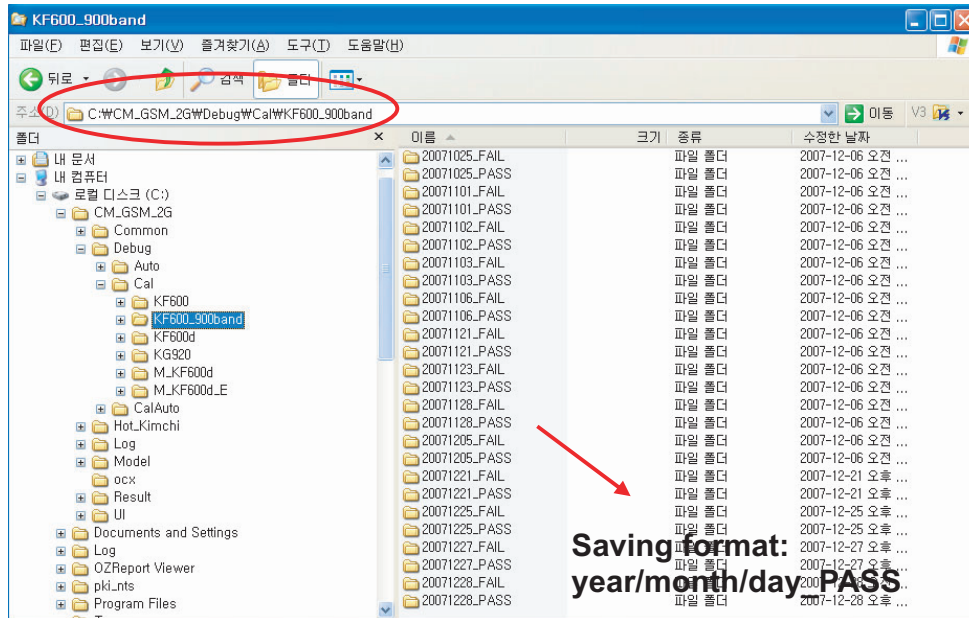
10.2.8. Click “START” for RF calibration



10.2.9. RF Calibration finishes.



10.2.10. Calibration data will be saved to the following folder.



10. RF Calibration

Notices:

1. The state of Phone is "test mode" during the CALIBRATION.
2. Calibration program automatically changes either "normal mode" or "ptest mode".
3. RF Calibration steps as follow:
TX Channel compensation: EGSM->DCS->PCS->EDGE EGSM->EDGE DCS->EDGE PCS
RX Channel compensation: EGSM->DCS->PCS
4. Phone Operation Mode



< Normal Mode >

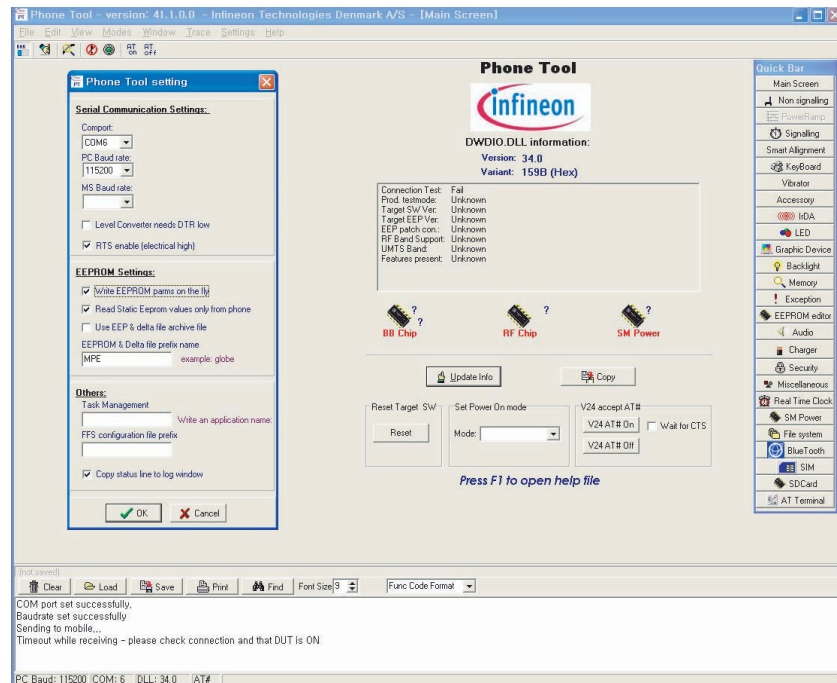


< ptest Mode>

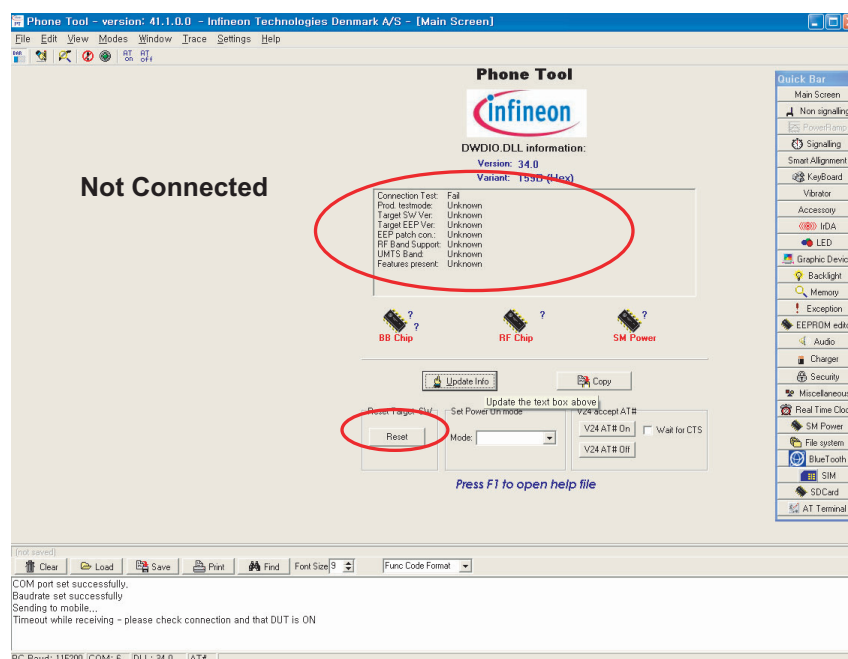
11. Stand-alone Test

11.1. Test Program Setting

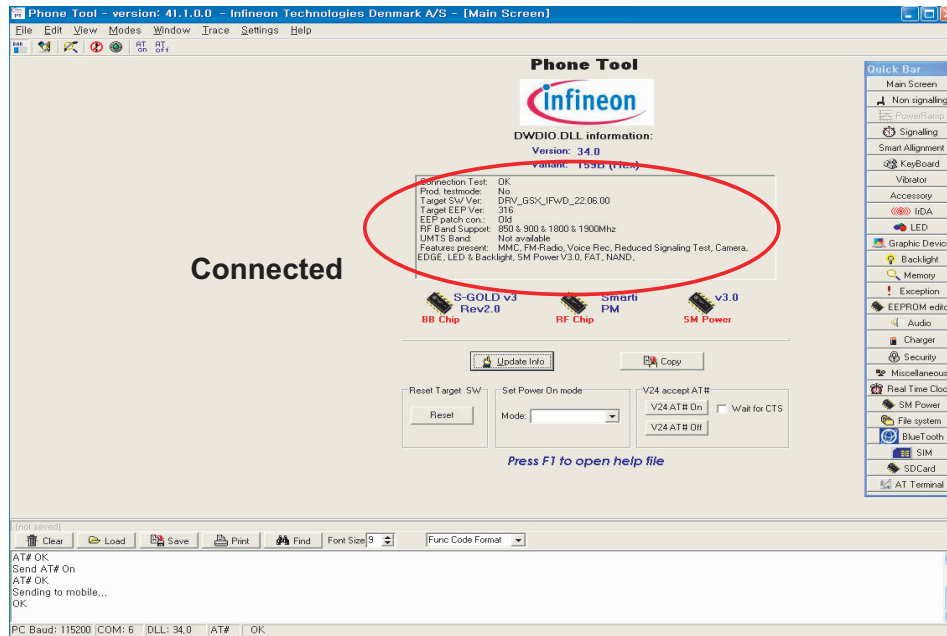
- ① Set COM Port.
- ② Check PC Baud rate.
- ③ Confirm EEPROM & Delta file prefix name.



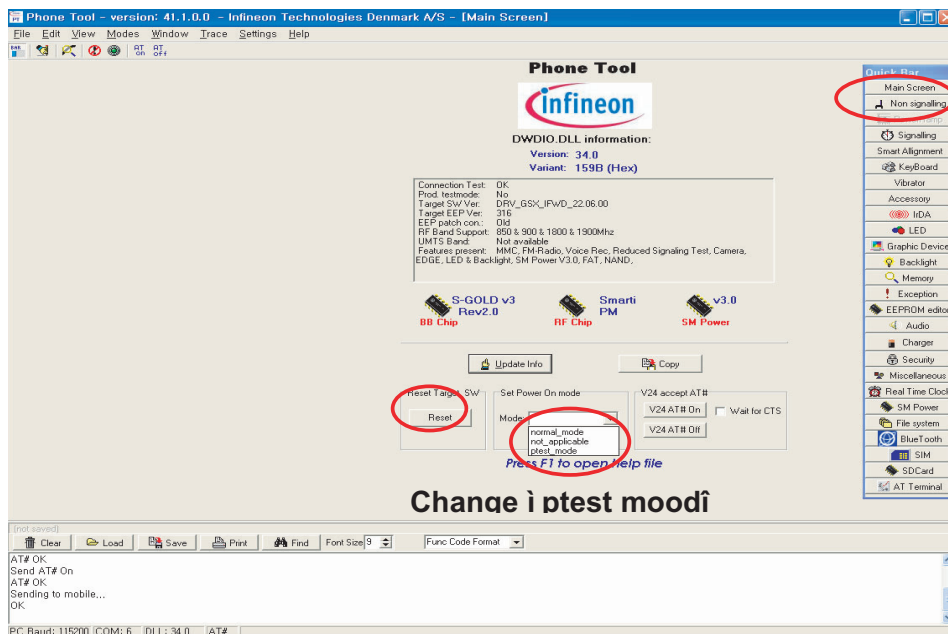
- ④ Click "Update Info" for communicating Phone and Test-Program.



11. Stand-alone Test



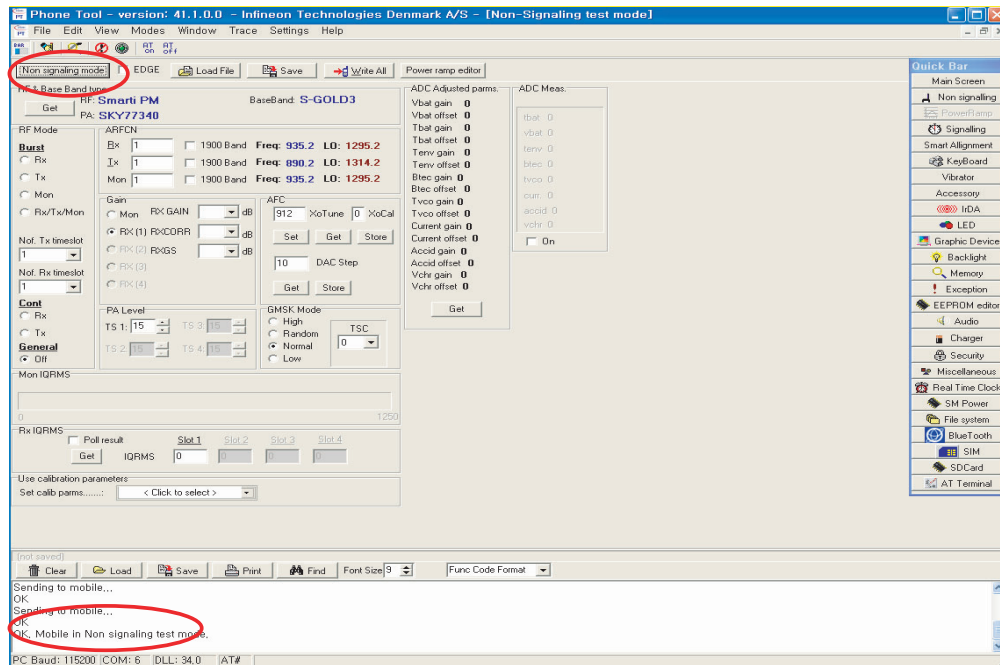
- ⑤ For the purpose of the Standalone Test, Change the Phone to “ptest mode” and then Click the “Reset” bar.
- ⑥ Select “Non signaling” in the Quick Bar menu. Then Standalone Test setup is finished.



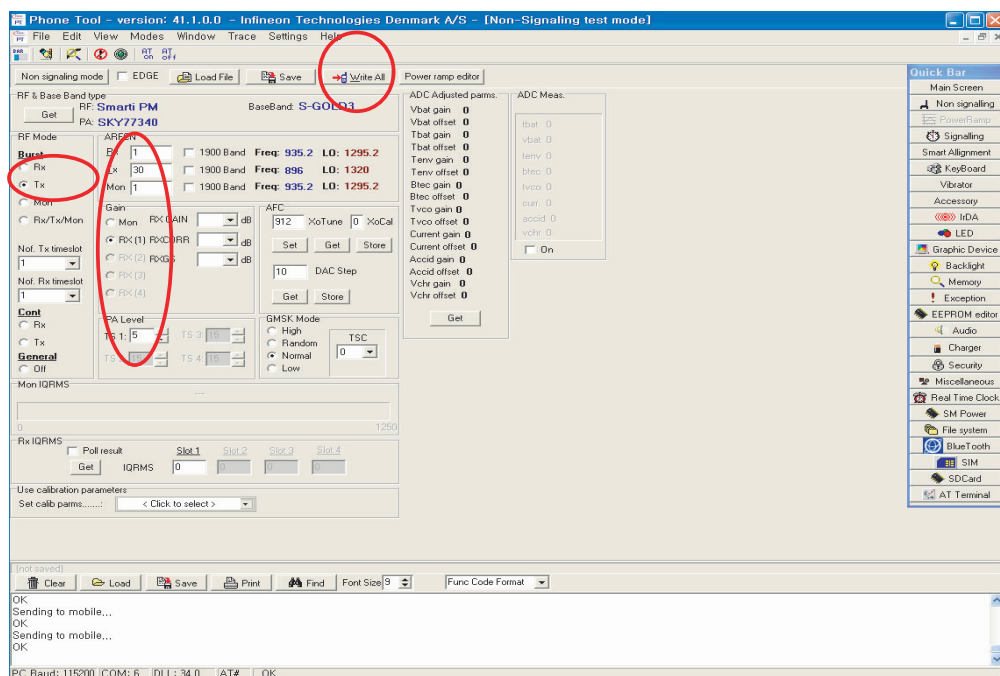
11. Stand-alone Test

11.2. Tx Test

- 1 Click “Non signaling mode” bar and then confirm “OK” text in the command line.



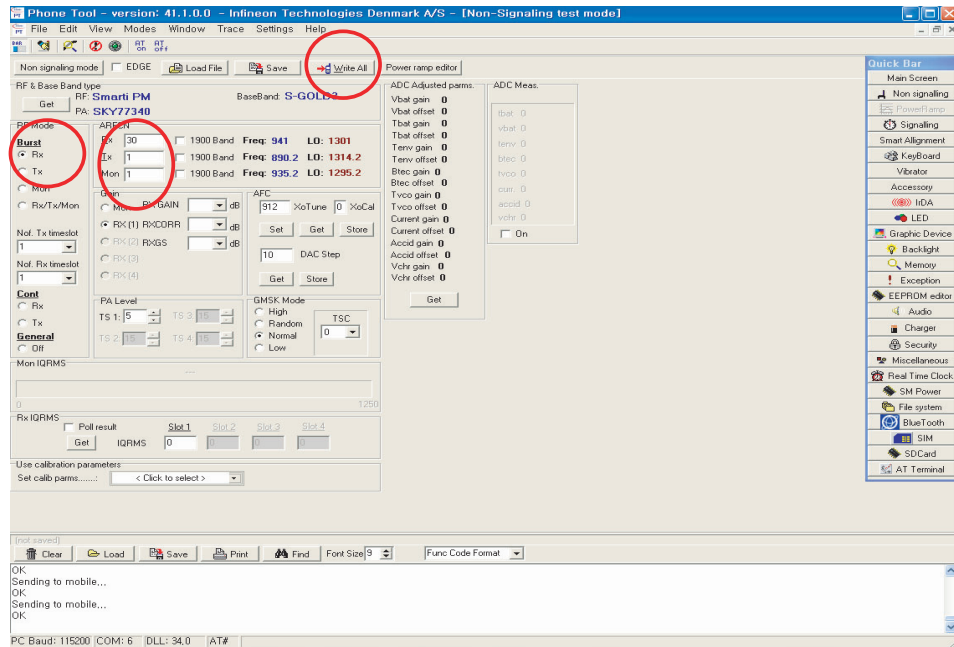
- 2 Put the number of TX Channel in the ARFCN.
- 3 Select “Tx” in the RF mode menu and “PCL” in the PA Level menu.
- 4 Finally, Click “Write All” bar and try the efficiency test of Phone.



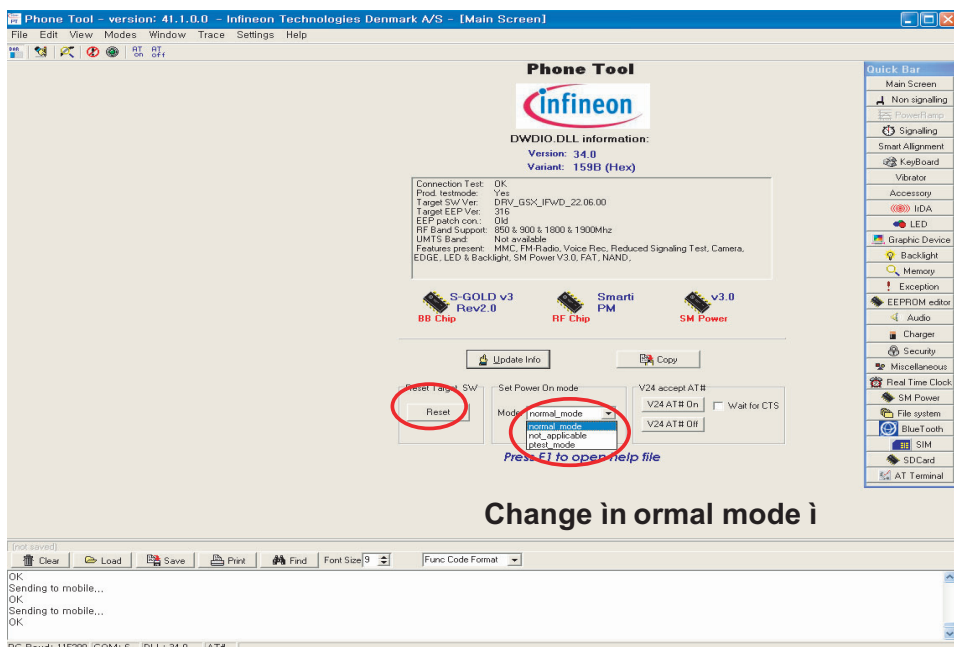
11. Stand-alone Test

11.3. Rx Test

- ① Put the number of RX Channel in the ARFCN.
- ② Select "Rx" in the RF mode menu.
- ③ Finally, Click "Write All" bar and try the efficiency test of Phone.



- ④ The Phone must be changed "normal mode" after finishing Test.
- ⑤ Change the Phone to "normal mode" and then Click the "Reset" bar.\



12. ENGINEERING MODE

Engineering mode is designed to allow a service man/engineer to view and test the basic functions provided by a handset. The key sequence for switching the engineering mode on is "2945#*#" Select. Pressing END will switch back to non-engineering mode operation. Use Up and Down key to select a menu and press 'select' key to progress the test. Pressing 'back key will switch back to the original test menu.

[1] BB TEST

[1-1] Battery Info

[1-1-1] BattInfo

[1-2] Bluetooth Test

[1-2-1] Enter Test Mode

[1-2-2] OnOff Test

[1-2-3] Headset Test

[1-2-4] BT Test1

[1-2-5] BT Test2

[1-2-6] Xhtml Compose Print

[1-2-7] Xhtml Print Test

[2] Model Version

[2-1] Version

[3] Eng Mode

[3-1] Cell environ.

[3-2] PS Layer Info

[3-2-1] Mobility

[3-2-2] RadioRes

[3-2-1] Gprs

[3-3] Layer1 Info

[3-4] Reset Information

[3-5] Memory Configuraron

[3-6] MemGenConf

[3-7] MemAllUse

[3-8] MemDetUse

[3-9] MemDump

[3-10] Change Frequency Band

[4] Call Timer

[6] MF TEST

[5] Factory Reset

[6-1] All Auto Test

[6-2] Backlight

[6-2-1] BacklightOn

[6-2-2] BacklightOff

[6-3] Audio

[6-3-1] Audio Test

[6-4] Vibrator

[6-4-1] VibratorOn

[6-4-2] VibratorOff

[6-5] LCD

[6-5-1] Auto LCD

[6-6] Key pad

[6-7] Mic Speaker

[6-8] Camera

[6-8-1] Camera Main Preview

[6-8-2] FlashOn

[6-8-3] FlashOff

[6-8-4] CameraFlashBunning

[6-9] FM Radio

[6-9-1] FM Radio Test

[6-10] Touchpad Test

[7] Network selection

[7-1] Automatic

[7-2] GSM850

[7-3] EGSM

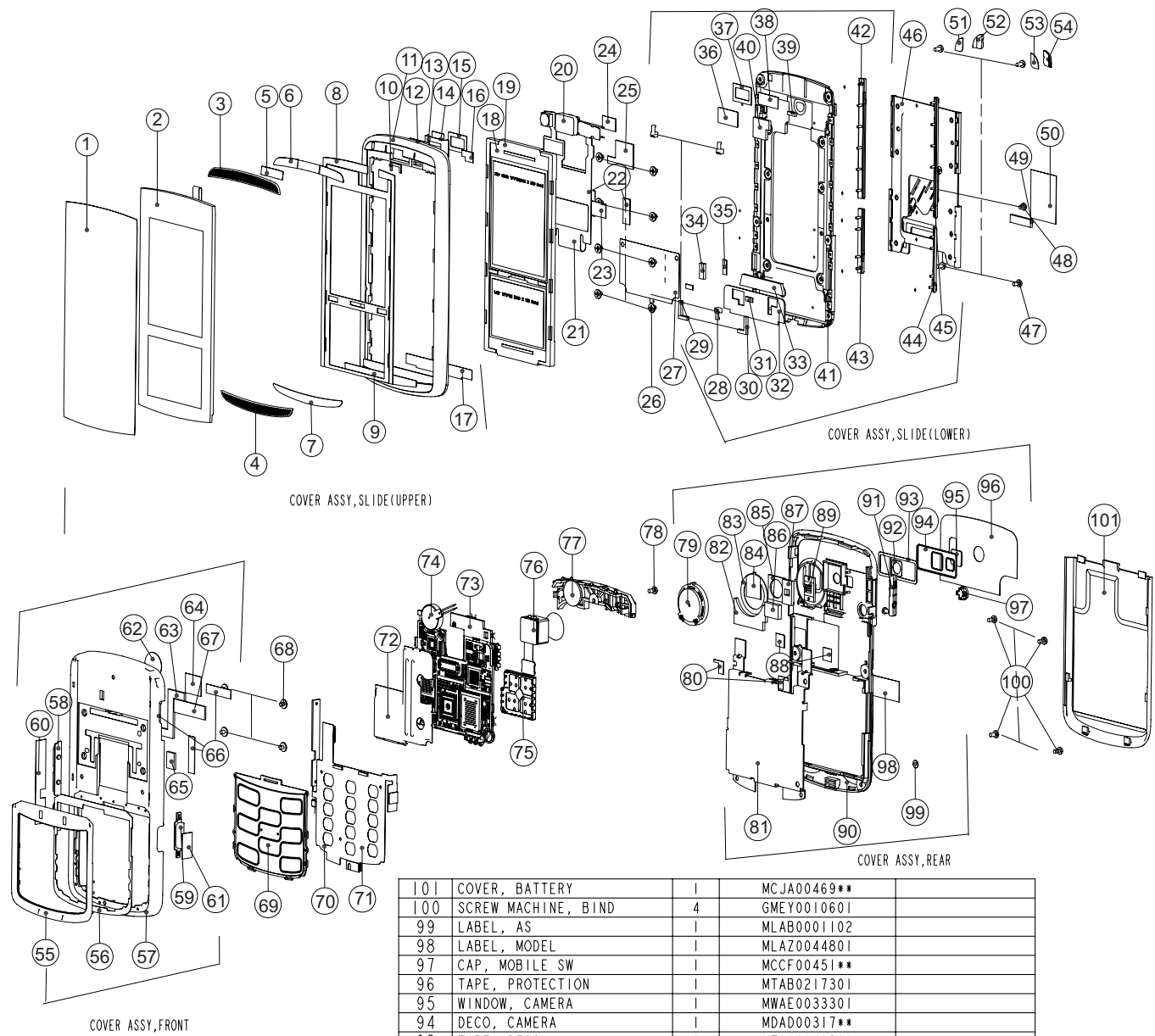
[7-4] DCS

[7-5] PCS



13. EXPLODED VIEW & REPLACEMENT PART LIST

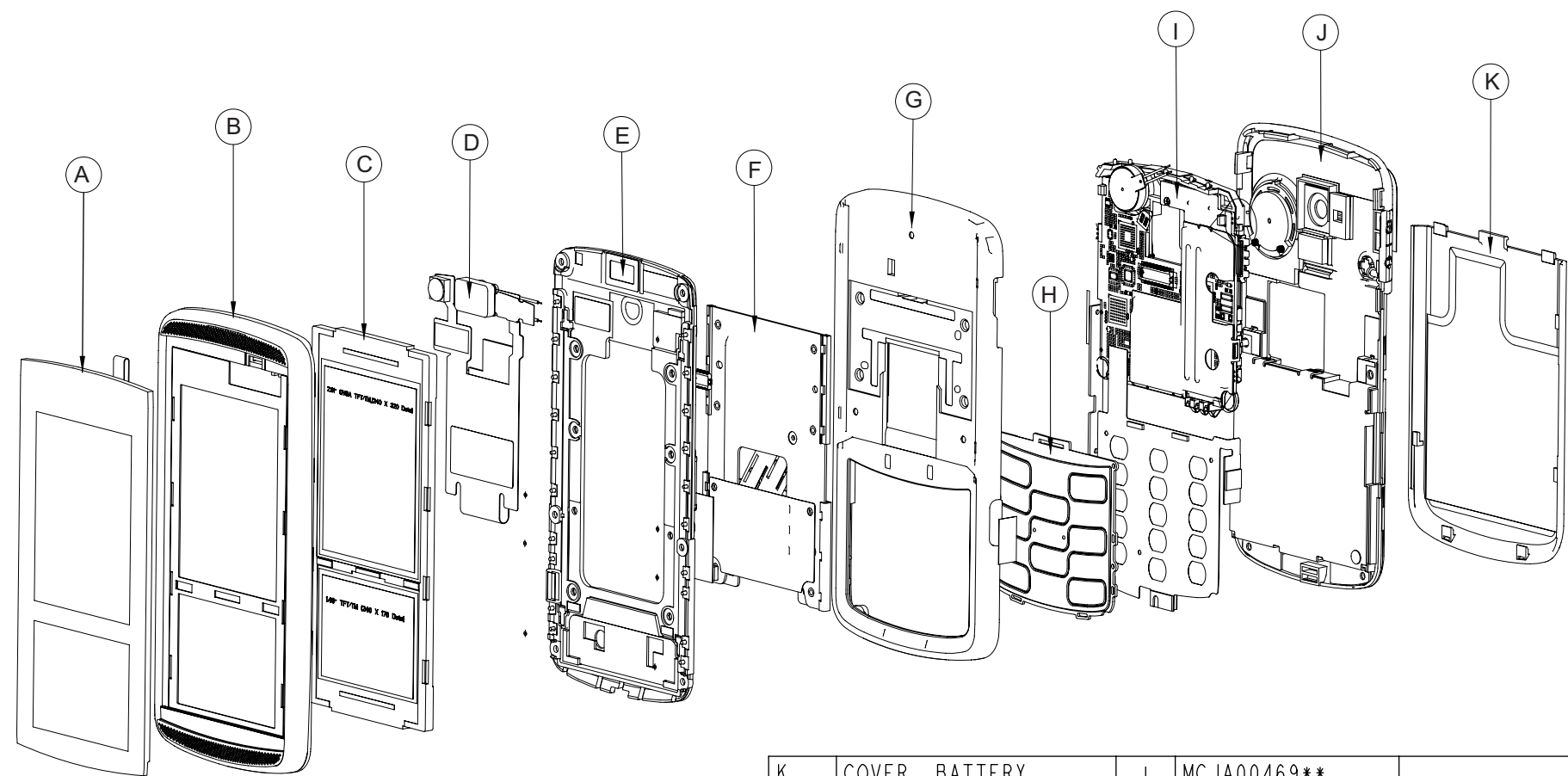
13.1 EXPLODED VIEW



101	COVER, BATTERY	1	MCJA00469**	
100	SCREW MACHINE, BIND	4	GMEY0010601	
99	LABEL, AS	1	MLAB0001102	
98	LABEL, MODEL	1	MLAZ0044801	
97	CAP, MOBILE SW	1	MCCF00451**	
96	TAPE, PROTECTION	1	MTAB0217301	
95	WINDOW, CAMERA	1	MWAE0033301	
94	DECO, CAMERA	1	MDAD00317**	
93	TAPE, DECO	1	MTAA0140201	
92	TAPE, WINDOW	1	MTAD0071101	
91	CAP, EARPHONE JACK	1	MCCC00470**	
90	COVER, REAR	1	MCJN00702**	
89	LENS, FLASH	1	MLCE0007901	
88	TAPE	2	MTAZ0204101	
87	GASKET	1	MGAZ0058501	
86	PAD, CONNECTOR	1	MPBU0011201	
85	PAD, CAMERA	1	MPBT0043801	
84	FILTER, SPEAKER	1	MFBC0032601	
83	PAD, SPEAKER	1	MPBN0047301	
82	PAD, SPEAKER	1	MPBN0051301	
81	PLATE	1	MPFZ0029801	
80	GASKET SHIELD FOAM	1	MGAD0155301	
79	SPEAKER	1	SUSY0027701	
78	SCREW MACHINE, BIND	1	GMEY0010601	
77	ANTENNA	1	SNGF00323**	
76	CAMERA	1	SVCY0015101	
75	SHIELD CAN(SMT)	1	ACKA0005101	
NO.	DESCRIPTION	Q'TY	DRAWING NO.	REMARK

74	MOTOR		SJMY0008412	
73	PCB ASSY, MAIN		SAFY0255**	
72	SHIELD CAN (FINGER)		MCBA0020001	
71	PCB ASS'Y, FLEXIBLE		SACY0068302	
70	DOME ASS'Y, METAL		ADCA0075801	
69	KEYPAD ASSY, MAIN		AKAC0026**	
68	SCREW MACHINE, BIND	4	GMEY0017801	
67	PAD, FPCB		MPBF0023001	
66	PAD	3	MPBG0073901	
65	PAD, CONNECTOR		MPBU0011101	
64	TAPE, CAMERA		MTAK0002001	
63	PAD, SPK		MPBN0052901	
62	TAPE, MOTOR		MTAF0013901	
61	TAPE, BUTTON		MTAG0006201	
60	TAPE, BUTTON		MTAG0006101	
59	BUTTON, CAMERA		MBJC00227**	
58	BUTTON, SIDE		MBJL00447**	
57	COVER, FRONT		MCJK00741**	
56	TAPE, DECO		MTAA0147601	
55	DECO, FRONT		MDAG00295**	
54	CAP, SCREW		MCCH01095**	
53	TAPE		MTAZ0196801	
52	CAP, SCREW		MCCH01096**	
51	TAPE		MTAZ0196901	
50	INSULATOR		MIDZ0156701	
49	PAD	1	MPBZ0200001	
48	SCREW MACHINE, BIND	2	GMEY0019201	
47	SCREW TAPPING	4	GGZ20002001	
46	RAIL ASSY, SLIDE		ARDY00032**	
45	GUIDE, LEFT		MGDA00106**	
44	GUIDE, LEFT		MGDA00117**	
43	GUIDE, RIGHT		MGDB00069**	
42	GUIDE, RIGHT		MGDB00056**	
41	COVER, SLIDE(LOWER)		MCJV00121**	
40	PAD, FLEXIBLE PCB		MPBF0022901	
39	PAD		MPBZ0194601	
38	PAD		MPBZ0199901	
37	PAD, RECEIVER		MPBM0022201	
36	PAD, CONNECTOR		MPBU0011301	
35	TAPE		MTAZ0196501	
34	MAGNET, SWITCH		MMAA0009401	
33	PAD, LCD		MPBG0063701	
32	PAD		MPBZ0194501	
31	INSULATOR	2	MIDZ0163601	
30	PAD, LCD(R)		MPBG0074901	
29	PAD, LCD(L)		MPBG0074801	
28	STOPPER, HINGE	4	MSGB00208**	
27	PLATE		MPFZ0029701	
26	SCREW MACHINE, BIND	8	GMEY0017801	
25	PAD(CENTER)		MPBZ0188901	
24	INSULATOR		MIDZ0156801	
23	PAD, FLEXIBLE PCB		MPBF0030501	
22	TAPE, SHIELD	2	MTAC0064201	
21	PCB ASSY, FLEXIBLE		SACY0068201	
20	RECEIVER		SURY0013401	
19	LCD MODULE		SVLM0023302	
18	PAD, LCD		MPBG0073901	
17	PAD		MPBZ0189101	
16	TAPE(TOUCH)		MTAZ0204701	
15	PAD, RECEIVER		MPBM0018901	
14	INSULATOR		MIDZ0161901	
13	PLATE(RECEIVER)		MPFZ0030401	
12	TAPE(RCV SUS)		MTAZ0196401	
11	COVER, SLIDE(UPPER)		MCJW00143**	
10	TAPE(UPPER)		MTAZ0196101	
9	TAPE, WINDOW(SUB)		MTAE0032401	
8	TAPE, WINDOW		MTAD0071001	
7	TAPE, DECO		MTAA0147801	
6	TAPE, DECO		MTAA0140101	
5	TAPE(FILTER)		MTAZ0196201	
4	DECO, FOLDER(UPPER)		MDAE00404**	
3	DECO, RECEIVER		MDAH00223**	
2	WINDOW, LCD(TOUCH)		MWAC0082001	
1	TAPE, PROTECTION(WINDOW)		MTAB02117**	
NO.	DESCRIPTION	Q'TY	DRAWING NO.	REMARK

ASS'Y EXPLODED VIEW



K	COVER, BATTERY	I	MCJA00469**	
J	COVER ASS'Y, REAR	I	ACGM01111**	
I	PCB ASSY, MAIN	I	SAFY0255**	
H	KEYPAD ASSY, MAIN	I	AKAC00026**	
G	COVER ASS'Y, FRONT	I	ACGK00923**	
F	RAIL ASSY, SLIDE	I	ARDY00032**	
E	COVER ASSY, LOWER	I	ACGR01160I	
D	PCB ASSY, FLEXIBLE	I	SACY001510I	
C	LCD, MODULE	I	SVLM002330I	
B	COVER ASSY, UPPER	I	ACGS00134**	
A	WINDOW, LCD	I	MWAC00820**	
NO.	DESCRIPTION	Q'TY	DRAWING NO.	REMARK

13. EXPLODED VIEW & REPLACEMENT PART LIST

13.2 Replacement Parts <Mechanic component>

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Spec	Color	Remark
1		GSM(SLIDE)	TGLL0012326		Silver	
2	AAAY00	ADDITION	AAAY0283553		Silver	
3	MCJA00	COVER,BATTERY	MCJA0046902		Without Color	101, K
3	MHBY00	HANDSTRAP	MHBY0004310	COMPLEX, (empty), , , ,	Without Color	
3	MLAZ00	LABEL	MLAZ0033601	IMEI Label,English	Without Color	
3	MTAB00	TAPE,PROTECTION	MTAB0217201	CUTTING, NS, , , ,	Without Color	
2	APEY00	PHONE	APEY0597502		Silver	
3	ACGM00	COVER ASSY,REAR	ACGM0109602		Black	
4	MCCC00	CAP,EARPHONE JACK	MCCC0047002	COMPLEX, (empty), , , ,	Black	91
4	MCCF00	CAP,MOBILE SWITCH	MCCF0045102	COMPLEX, (empty), , , ,	Without Color	97
4	MCJN00	COVER,REAR	MCJN0070202	MOLD, PC LUPOY SC-1004A, , , ,	Without Color	90
4	MDAD00	DECO,CAMERA	MDAD0031701	ELECTROFORMING, Ni, 0.2, , ,	Without Color	94
4	MFBC00	FILTER,SPEAKER	MFBC0032601	PRESS, STS, 0.1, , , ,	Without Color	84
4	MGAD00	GASKET,SHIELD FORM	MGAD0155301	COMPLEX, (empty), , , ,	Without Color	80
4	MGAD01	GASKET,SHIELD FORM	MGAD0155302	COMPLEX, (empty), , , ,	Without Color	
4	MGAZ00	GASKET	MGAZ0058501	COMPLEX, (empty), , , ,	Without Color	87
4	MLAB00	LABEL,A/S	MLAB0001102	C2000 USASV DIA 4.0	White	99
4	MLAZ00	LABEL	MLAZ0044801	CE0186	White	98
4	MLCE00	LENS,FLASH	MLCE0007901	MOLD, PC LUPOY HI-1002M, , , ,	Without Color	89
4	MPBN00	PAD,SPEAKER	MPBN0047301	COMPLEX, (empty), , , ,	Without Color	83
4	MPBN01	PAD,SPEAKER	MPBN0051301	COMPLEX, (empty), , , ,	Without Color	82
4	MPBT00	PAD,CAMERA	MPBT0043801	COMPLEX, (empty), , , ,	Without Color	85

13. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
4	MPBU00	PAD,CONNECTOR	MPBU0011201	COMPLEX, (empty), , , ,	Without Color	86
4	MPFZ00	PLATE	MPFZ0029801	PRESS, STS, 0.4, , , ,	Without Color	81
4	MTAA00	TAPE,DECO	MTAA0140201	COMPLEX, (empty), , , ,	Without Color	93
4	MTAB00	TAPE,PROTECTION	MTAB0217301	COMPLEX, (empty), , , ,	Without Color	96
4	MTAD00	TAPE,WINDOW	MTAD0071101	COMPLEX, (empty), , , ,	Without Color	92
4	MTAZ00	TAPE	MTAZ0204101	COMPLEX, (empty), , , ,	Without Color	88
4	MWAE00	WINDOW,CAMERA	MWAE0033301	CUTTING, NS, , , ,	Black	95
3	ACGQ00	COVER ASSY,SLIDE	ACGQ0019717		Without Color	
4	ACGK00	COVER ASSY,FRONT	ACGK0092302		Without Color	G
5	MBJC00	BUTTON,FUNCTION	MBJC0022702	COMPLEX, (empty), , , ,	Without Color	59
5	MBJL00	BUTTON,SIDE	MBJL0044702	COMPLEX, (empty), , , ,	Black	58
5	MCJK00	COVER,FRONT	MCJK0074102	MOLD, PC LUPOY SC-1004A, , , ,	Without Color	57
5	MDAG00	DECO,FRONT	MDAG0029501	MOLD, POM LUCEL N109-LD, , , ,	Black	55
5	MPBF00	PAD,FLEXIBLE PCB	MPBF0023001	COMPLEX, (empty), , , ,	Without Color	67
5	MPBG00	PAD,LCD	MPBG0073901	CUTTING, NS, , , ,	Without Color	
5	MPBN00	PAD,SPEAKER	MPBN0052901	COMPLEX, (empty), , , ,	Without Color	63
5	MPBU00	PAD,CONNECTOR	MPBU0011101	COMPLEX, (empty), , , ,	Without Color	65
5	MTAA00	TAPE,DECO	MTAA0147601	COMPLEX, (empty), , , ,	Without Color	56
5	MTAF00	TAPE,MOTOR	MTAF0013901	COMPLEX, (empty), 0.05, , , ,	Without Color	62
5	MTAG00	TAPE,BUTTON	MTAG0006101	COMPLEX, (empty), , , ,	Without Color	60
5	MTAG01	TAPE,BUTTON	MTAG0006201	COMPLEX, (empty), , , ,	Without Color	61
5	MTAK00	TAPE,CAMERA	MTAK0002001	COMPLEX, (empty), , , ,	Without Color	64
4	ACGR00	COVER ASSY,SLIDE(LOWER)	ACGR0011601		Without Color	E

13. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
5	MCJV00	COVER,SLIDE(LOWER)	MCJV0012101	CASTING, Mg Alloy, , , , ,	Without Color	41
5	MGDA00	GUIDE,LEFT	MGDA0011701	MOLD, POM LUCEL FW-700A, , , , ,	Black	44
5	MGDA01	GUIDE,LEFT	MGDA0010601	MOLD, POM LUCEL N109-LD, , , , ,	Without Color	45
5	MGDB00	GUIDE,RIGHT	MGDB0006901	MOLD, POM LUCEL FW-700A, , , , ,	Black	43
5	MGDB01	GUIDE,RIGHT	MGDB0005601	MOLD, POM LUCEL N109-LD, , , , ,	Without Color	42
5	MIDZ00	INSULATOR	MIDZ0163601	CUTTING, NS, , , , ,	Without Color	31
5	MMAA00	MAGNET,SWITCH	MMAA0009401	COMPLEX, (empty), , , , ,	Without Color	34
5	MPBF00	PAD,FLEXIBLE PCB	MPBF0022901	COMPLEX, (empty), , , , ,	Without Color	40
5	MPBG00	PAD,LCD	MPBG0063701	COMPLEX, (empty), , , , ,	Without Color	33
5	MPBG01	PAD,LCD	MPBG0074801	CUTTING, NS, , , , ,	Without Color	29
5	MPBG02	PAD,LCD	MPBG0074901	CUTTING, NS, , , , ,	Without Color	30
5	MPBM00	PAD,RECEIVER	MPBM0022201	CUTTING, NS, , , , ,	Without Color	37
5	MPBU00	PAD,CONNECTOR	MPBU0011301	COMPLEX, (empty), , , , ,	Without Color	36
5	MPBZ00	PAD	MPBZ0194501	CUTTING, NS, , , , ,	Black	32
5	MPBZ01	PAD	MPBZ0199901	CUTTING, NS, , , , ,	Without Color	38
5	MPBZ02	PAD	MPBZ0194601	CUTTING, NS, , , , ,	Blue	39
5	MSGB00	STOPPER,HINGE	MSGB0020801	MOLD, Urethane Rubber S190A, , , , ,	Without Color	28
5	MTAZ00	TAPE	MTAZ0196501	COMPLEX, (empty), , , , ,	Without Color	35
4	ACGS00	COVER ASSY, SLIDE(UPPER)	ACGS0013402		Silver	B
5	MCJW00	COVER,SLIDE(UPPER)	MCJW0014302	CASTING, Al Alloy, , , , ,	Silver	11
5	MDAE00	DECO,FOLDER(UPPER)	MDAE0040401	PRESS, STS, 0.2, , , ,	Without Color	4
5	MDAH00	DECO,RECEIVER	MDAH0022301	PRESS, STS, 0.2, , , ,	Without Color	3
5	MIDZ00	INSULATOR	MIDZ0161901	CUTTING, NS, , , , ,	Without Color	14

13. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
5	MPBM00	PAD,RECEIVER	MPBM0018901	COMPLEX, (empty), , , , ,	Without Color	15
5	MPBZ00	PAD	MPBZ0189101	COMPLEX, (empty), 0.3, , , ,	Without Color	17
5	MPFZ00	PLATE	MPFZ0030401	PRESS, STS, 0.1, , , ,	Without Color	13
5	MTAA00	TAPE,DECO	MTAA0140101	COMPLEX, (empty), , , , ,	Without Color	6
5	MTAA01	TAPE,DECO	MTAA0147801	COMPLEX, (empty), 0.2, , , ,	Without Color	7
5	MTAB00	TAPE,PROTECTION	MTAB0232101	COMPLEX, (empty), , , , ,	Without Color	
5	MTAD00	TAPE,WINDOW	MTAD0071001	COMPLEX, (empty), , , , ,	Without Color	8
5	MTAE00	TAPE,WINDOW(SUB)	MTAE0032401	COMPLEX, (empty), 0.2, , , ,	Without Color	9
5	MTAZ00	TAPE	MTAZ0196101	COMPLEX, (empty), 0.3, , , ,	Without Color	10
5	MTAZ01	TAPE	MTAZ0196201	COMPLEX, (empty), 0.05, , , ,	Without Color	5
5	MTAZ03	TAPE	MTAZ0196401	COMPLEX, (empty), 0.05, , , ,	Without Color	12
5	MTAZ04	TAPE	MTAZ0204701	CUTTING, NS, 0.05, , , ,	Without Color	16
4	AKAC00	KEYPAD ASSY,MAIN	AKAC0002601	ENGLISH	Black	69, H
4	ARDY00	RAIL ASSY,SLIDE	ARDY0003201		Black	46, F
4	GGZZ00	SCREW TAPPING	GGZZ0002001	1.7 mm,2.2 mm,MSWR3(BK) ,B ,+ , - ,	Black	47
4	GMEY02	SCREW MACHINE,BIND	GMEY0017801		Without Color	26, 68
4	GMEY03	SCREW MACHINE,BIND	GMEY0019201	1.4 mm,1.8 mm,SWCH18A ,N ,+ , , , ,[empty] ,+ , , , ,CR-7 ,WHITE ,[empty] ,[empty]	WHITE SILVER	48
4	MCCH00	CAP,SCREW	MCCH0109501	COMPLEX, (empty), , , , ,	Without Color	54
4	MCCH01	CAP,SCREW	MCCH0109601	COMPLEX, (empty), , , , ,	Without Color	52
4	MIDZ00	INSULATOR	MIDZ0156801	CUTTING, NS, , , , ,	Without Color	24
4	MIDZ01	INSULATOR	MIDZ0156701	CUTTING, NS, , , , ,	Without Color	50
4	MLAZ00	LABEL	MLAZ0038303	PRINTING, (empty), , , , ,	White	
4	MPBF00	PAD,FLEXIBLE PCB	MPBF0030501	CUTTING, NS, , , , ,	Without Color	23

13. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
4	MPBG00	PAD,LCD	MPBG0073901	CUTTING, NS, , , ,	Without Color	18, 66
4	MPBZ00	PAD	MPBZ0188901	COMPLEX, (empty), , , ,	Without Color	25
4	MPBZ02	PAD	MPBZ0200001	CUTTING, NS, , , ,	Without Color	49
4	MPFZ00	PLATE	MPFZ0029701	PRESS, STS, 0.2, , ,	Without Color	27
4	MTAB00	TAPE,PROTECTION	MTAB0211703	CUTTING, NS, , , ,	Without Color	1
4	MTAC00	TAPE,SHIELD	MTAC0064201	CUTTING, NS, , , ,	Without Color	22
4	MTAZ00	TAPE	MTAZ0196801	COMPLEX, (empty), , , ,	Without Color	53
4	MTAZ01	TAPE	MTAZ0196901	COMPLEX, (empty), , , ,	Without Color	51
4	MWAC00	WINDOW,LCD	MWAC0082001	COMPLEX, (empty), , , ,	Without Color	2, A
6	MPBZ00	PAD	MPBZ0189301	COMPLEX, (empty), , , ,	Without Color	
6	MPBZ01	PAD	MPBZ0189001	COMPLEX, (empty), , , ,	Without Color	
6	MTAJ00	TAPE,FLEXIBLE PCB	MTAJ0003001	COMPLEX, (empty), , , ,	Without Color	
3	GMEY00	SCREW MACHINE,BIND	GMEY0010601	1.4 mm,2.5 mm,MSWR3(BK) ,N ,+ ,NYLOK	Black	78, 100
3	MLAK00	LABEL,MODEL	MLAK0006901	PRINTING, (empty), , , ,	White	
5	MCBA02	CAN,SHIELD	MCBA0020001	PRESS, STS, , , ,	Without Color	72
7	ADCA00	DOME ASSY,METAL	ADCA0075801		Without Color	70
5	MLAZ00	LABEL	MLAZ0038301	PID Label 4 Array	Without Color	
6	SC401	CAN ASSY,SHIELD	ACKA0005101		Without Color	75

13. EXPLODED VIEW & REPLACEMENT PART LIST

<Main component>

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Spec	Color	Remark
4	SUSY01	SPEAKER	SUSY0027701	PIN ,8 ohm, dB,16 mm, ,; , , , , , ,CONTACT		79
4	..	LCD MODULE	SVLM0023302	MAIN ,240*320(2.0") + 240*176(1.5") ,39.1*84.93*2.18t ,262k ,TFT ,TM ,M:LGDP4532,S:LGDP4532 ,Hydis Panel		19
4	SACY00	PCB ASSY,FLEXIBLE	SACY0068201			21
5	SACB00	PCB ASSY,FLEXIBLE,INSERT	SACB0042701			
5	SACE00	PCB ASSY,FLEXIBLE,SMT	SACE0062601			
6	SACC00	PCB ASSY,FLEXIBLE,SMT BOTTOM	SACC0040701			
7	C101	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
7	C102	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
7	C103	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
7	CN103	CONNECTOR,FFC/FPC	ENQY0008602	6 PIN,0.5 mm,ETC ,AU ,H:1.2MM		
7	L101	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
7	L102	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	SACD00	PCB ASSY,FLEXIBLE,SMT TOP	SACD0052301			
7	BAT101	BATTERY,CELL,LITHIUM	SBCL0001701	2 V,0.5 mAh,CYLINDER ,Reflow type BB, Max T 1.67, phi 4.8, Pb-Free		
7	CN101	CONNECTOR,BOARD TO BOARD	ENBY0023201	44 PIN,0.4 mm,ETC , ,H=0.9, Header		
7	CN102	CONNECTOR,BOARD TO BOARD	ENBY0023701	54 PIN,0.4 mm,ETC , ,H=0.9, Socket		
6	SPCY00	PCB,FLEXIBLE	SPCY0114701	FR-1 ,0.1 mm,DOUBLE , ,; , , , , , , ,		
4	SURY00	RECEIVER	SURY0013401	ASSY ,107 dB,32 ohm,11*07 , ,; , , , , , ,CONNECTOR ,		20
4	SVCY00	CAMERA	SVCY0015101	CMOS ,MEGA ,3M AF [Micron 1/4", MI-3130, CCP2, FPCB]		76
3	SAFY00	PCB ASSY,MAIN	SAFY0255118		Color Unfixed	73, I
4	SAFB00	PCB ASSY,MAIN,INSERT	SAFB0075701		Color Unfixed	
5	SACY00	PCB ASSY,FLEXIBLE	SACY0068302			71
6	SACB00	PCB ASSY,FLEXIBLE,INSERT	SACB0042801			
6	SACE00	PCB ASSY,FLEXIBLE,SMT	SACE0062701			

13. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C207	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C208	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C216	CAP,CHIP,MAKER	ECZH0000844	68 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C217	CAP,CHIP,MAKER	ECZH0000844	68 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C219	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C220	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C221	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C222	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C223	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C224	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C230	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C252	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C254	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C255	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C256	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C258	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C259	CAP,CERAMIC,CHIP	ECCH0005603	2.2 uF,10V ,K ,X5R ,TC ,1608 ,R/TP		
6	C260	CAP,CERAMIC,CHIP	ECCH0005603	2.2 uF,10V ,K ,X5R ,TC ,1608 ,R/TP		
6	C261	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C262	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C263	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C264	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C265	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C276	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C284	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C286	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C304	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C305	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C306	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C307	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C308	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		

13. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C309	CAP,CHIP,MAKER	ECZH0000901	24 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C310	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C311	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C312	CAP,CERAMIC,CHIP	ECCH0000391	1 uF,50V ,Z ,Y5V ,HD ,2012 ,R/TP		
6	C313	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP		
6	C314	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C315	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C316	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C317	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C318	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C319	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C320	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP		
6	C321	CAP,CHIP,MAKER	ECZH0000901	24 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C322	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP		
6	C323	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C335	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C336	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C337	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C401	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C402	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C404	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C405	INDUCTOR,CHIP	ELCH0004727	100 nH,J ,1005 ,R/TP ,		
6	C410	INDUCTOR,CHIP	ELCH0001402	18 nH,J ,1005 ,R/TP ,Pb Free		
6	C411	CAP,CERAMIC,CHIP	ECCH0000701	1.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C412	CAP,TANTAL,CHIP	ECTH0005706	68 uF,6.3V ,M ,L_ ESR ,3216 ,R/TP , , , [empty] , [empty] , [empty] , [empty] , [empty] , [empty] , [empty] , [empty]		
6	C413	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C414	CAP,CERAMIC,CHIP	ECCH0000901	2.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C415	CAP,CERAMIC,CHIP	ECCH0000901	2.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C416	CAP,CERAMIC,CHIP	ECCH0000901	2.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C417	CAP,CERAMIC,CHIP	ECCH0000901	2.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C418	CAP,CERAMIC,CHIP	ECCH0000175	2.7 pF,50V ,B ,NP0 ,TC ,1005 ,R/TP		

13. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C419	CAP,CERAMIC,CHIP	ECCH0000175	2.7 pF,50V ,B ,NP0 ,TC ,1005 ,R/TP		
6	C420	CAP,CERAMIC,CHIP	ECCH0000183	1.8 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C421	CAP,CERAMIC,CHIP	ECCH0000183	1.8 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C422	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C424	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C425	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C426	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C427	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C428	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C429	CAP,CHIP,MAKER	ECZH0001126	820 pF,50V ,K ,X7R ,HD ,1005 ,R/TP		
6	C430	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C431	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C432	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C433	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C434	CAP,CERAMIC,CHIP	ECCH0000163	47 nF,10V,K,X5R,HD,1005,R/TP		
6	C435	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C436	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C438	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C439	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C443	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C444	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C445	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C446	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	CN202	CONNECTOR,ETC	ENZY0016301	3 PIN,3.0 mm,ETC , ,H=2.0		
6	CN301	CONNECTOR,BOARD TO BOARD	ENBY0016601	20 PIN,0.4 mm,STRAIGHT ,AU ,0.9 STACKING HEIGHT		
6	CN302	CONNECTOR,I/O	ENRY0006401	18 PIN,0.4 mm,ANGLE , ,H=2.5, Reverse Type		
6	FB301	FILTER,BEAD,CHIP	SFBH0007102	10 ohm,1005 ,Ferrite Bead		
6	FB302	FILTER,BEAD,CHIP	SFBH0008103	1000 ohm,1005 ,chip bead, 200mA,DCR0.9ohm ; , , ,SMD ,R/TP		
6	FL301	FILTER,EMI/POWER	SFEY0007101	SMD ,1CH,1608Feedthru ESD/EMI filter for power Pb-free		
6	FL302	VARISTOR	SEVY0008302	5.5 V,30% ,SMD ,1409Size (4CH)		

13. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	FL303	VARISTOR	SEVY0008302	5.5 V,30% ,SMD ,1409Size (4CH)		
6	FL401	FILTER,SEPERATOR	SFAY0011401	850.900 ,1800.1900 , dB, dB, dB, dB,4532 ,GSM Quad band FEM.		
6	L202	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L203	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L302	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L303	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L304	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L305	INDUCTOR,CHIP	ELCH0010302	100 nH,J ,1608 ,R/TP ,chip coil		
6	L401	INDUCTOR,CHIP	ELCH0001402	18 nH,J ,1005 ,R/TP ,Pb Free		
6	L402	INDUCTOR,CHIP	ELCH0009105	18 nH,J ,1005 ,R/TP ,COIL		
6	L403	INDUCTOR,CHIP	ELCH0009110	5.1 nH,J ,1005 ,R/TP ,chip coil		
6	L404	INDUCTOR,CHIP	ELCH0009110	5.1 nH,J ,1005 ,R/TP ,chip coil		
6	LD201	DIODE,LED,MODULE	EDLM0008806	WHITE ,1 LED,3.5x2.8x1.2t ,R/TP ,high power		
6	Q203	TR,BJT,NPN	EQBN0012401	ESM ,100 mW,R/TP ,NPN TRANSISTOR		
6	R203	RES,CHIP,MAKER	ERHZ0000444	22 Kohm,1/16W ,J ,1005 ,R/TP		
6	R205	RES,CHIP,MAKER	ERHZ0000444	22 Kohm,1/16W ,J ,1005 ,R/TP		
6	R214	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R215	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R216	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R217	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R218	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R219	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R220	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R221	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R222	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R226	RES,CHIP	ERHY0011901	47 mohm,1/4W ,F ,2012 ,R/TP		
6	R238	RES,CHIP,MAKER	ERHZ0000331	110 Kohm,1/16W ,F ,1005 ,R/TP		
6	R240	RES,CHIP,MAKER	ERHZ0000530	5.1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R242	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R243	RES,CHIP,MAKER	ERHZ0000493	51 Kohm,1/16W ,J ,1005 ,R/TP		
6	R245	RES,CHIP,MAKER	ERHZ0000493	51 Kohm,1/16W ,J ,1005 ,R/TP		

13. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	R246	RES,CHIP,MAKER	ERHZ0000308	62 Kohm,1/16W ,F ,1005 ,R/TP		
6	R247	RES,CHIP,MAKER	ERHZ0000518	910 ohm,1/16W ,J ,1005 ,R/TP		
6	R250	RES,CHIP,MAKER	ERHZ0000213	120 Kohm,1/16W ,F ,1005 ,R/TP		
6	R253	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R275	RES,CHIP,MAKER	ERHZ0000444	22 Kohm,1/16W ,J ,1005 ,R/TP		
6	R276	RES,CHIP,MAKER	ERHZ0000444	22 Kohm,1/16W ,J ,1005 ,R/TP		
6	R302	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R304	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R306	RES,CHIP,MAKER	ERHZ0000529	1.5 Kohm,1/16W ,J ,1005 ,R/TP		
6	R307	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R308	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R309	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R310	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R311	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R313	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R314	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R315	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R316	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R317	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R319	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R320	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R322	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R323	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R326	RES,CHIP,MAKER	ERHZ0000463	33 ohm,1/16W ,J ,1005 ,R/TP		
6	R328	RES,CHIP,MAKER	ERHZ0000463	33 ohm,1/16W ,J ,1005 ,R/TP		
6	R329	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R330	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R331	FILTER,BEAD,CHIP	SFBH0008103	1000 ohm,1005 ,chip bead, 200mA,DCR0.9ohm ; , , ,SMD ,R/TP		
6	R332	FILTER,BEAD,CHIP	SFBH0008103	1000 ohm,1005 ,chip bead, 200mA,DCR0.9ohm ; , , ,SMD ,R/TP		
6	R334	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R401	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		

13. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	R402	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R403	RES,CHIP,MAKER	ERHZ0000244	22 Kohm,1/16W ,F ,1005 ,R/TP		
6	R404	THERMISTOR	SETY0006301	NTC ,10000 ohm,SMD ,1005, 3350~3399k, J, R/T, PBFREE		
6	R405	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R406	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R408	CAP,CHIP,MAKER	ECZH0000846	8.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	R409	RES,CHIP,MAKER	ERHZ0000412	1200 ohm,1/16W ,J ,1005 ,R/TP		
6	R410	INDUCTOR,CHIP	ELCH0003815	2.7 nH,S ,1005 ,R/TP ,		
6	R411	RES,CHIP	ERHY0000185	820 ohm,1/16W ,F ,1005 ,R/TP		
6	R412	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R414	RES,CHIP,MAKER	ERHZ0000441	22 ohm,1/16W ,J ,1005 ,R/TP		
6	R416	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R418	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	S201	CONN,SOCKET	ENSY0018601	16 PIN,ETC , ,2.54 mm,UIM 8P, Micro SD Dupli-Socket		
6	SW401	CONN,RF SWITCH	ENWY0004401	,SMD , dB,H=2.2		
6	U201	IC	EUSY0261501	WCSP ,16 PIN,R/TP ,80-mW Capless Stereo Headphone Driver		
6	U204	IC	EUSY0286901	SOT23-5 ,5 PIN,R/TP ,2.5V Sense voltage(max), current monitor		
6	U209	IC	EUSY0349001	BGA ,8 PIN,R/TP ,Class AB SPK AMP ,; ,IC,Audio Amplifier		
6	U302	IC	EUSY0319201	DFN ,10 PIN,R/TP ,OVP		
6	U303	IC	EUSY0338301	uMLP ,10 PIN,R/TP ,High Speed USB Siwitch 2.0 3.7pF 6.5ohm 1.4X1.8		
6	U304	IC	EUSY0337101	CSP ,12 PIN,R/TP ,Touchscreen Controller IC , ,IC,A/D Converter		
6	U305	IC	EUSY0319001	WDFN-8L ,8 PIN,R/TP ,300mA/300mA 2.8V/1.8V Dual LDO		
6	U402	PAM	SMPY0012301	dBm, %, A, dBc, dB, ,SMD ,		
6	U403	IC	EUSY0274801	VQFN ,40 PIN,R/TP ,GPRS, EDGE TRANSCEIVER		
6	VA201	VARISTOR	SEVY0004401	18 V , ,SMD ,40pF, 1005		
6	VA202	VARISTOR	SEVY0004401	18 V , ,SMD ,40pF, 1005		
6	VA301	VARISTOR	SEVY0003601	5.6 V , ,SMD ,100pF, 1005		
6	VA302	VARISTOR	SEVY0003601	5.6 V , ,SMD ,100pF, 1005		

13. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	X401	VCTCXO	EXSK0008201	26 MHz,2 PPM, pF,SMD ,32*25*10.5 , ; , ,2PPM ,2.85V ,32 ,25 ,10.5 , ,SMD ,P/TP		
5	SAFD00	PCB ASSY,MAIN,SMT TOP	SAFD0100202			
6	C101	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C102	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C103	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C104	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C105	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C106	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C107	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C108	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C109	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C110	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C111	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C112	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C113	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C114	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C115	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C116	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C117	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C118	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C119	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C121	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C122	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C123	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C124	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C125	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C126	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C127	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C128	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C129	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C130	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		

13. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C131	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C132	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C133	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C134	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C135	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C136	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C137	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C138	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C139	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C140	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C201	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C202	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C203	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C204	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C205	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C206	CAP,TANTAL,CHIP	ECTH0005702	100 uF,6.3V ,M ,L_ESR ,3216 ,R/TP , , , [empty] , [empty] , [empty] , , [empty] , [empty] , [empty] , [empty] , [empty] , [empty]		
6	C209	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C210	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C211	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C212	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C213	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C214	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C215	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C218	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C225	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C226	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C227	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C228	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C229	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C231	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP		
6	C232	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP		

13. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C233	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP		
6	C234	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP		
6	C235	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP		
6	C236	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C237	CAP,CERAMIC,CHIP	ECCH0000393	22000000 pF,6.3V ,M ,X5R ,HD ,2012 ,R/TP , , [empty] ,[empty] , [empty] , [empty] , [empty] , [empty] , 1.25 mm		
6	C238	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C239	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C240	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C241	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C242	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C243	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C244	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C245	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C246	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C247	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C248	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C249	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C250	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C251	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C266	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C268	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C269	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C270	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C271	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C272	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C273	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C274	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C275	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP		
6	C277	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C278	CAP,CERAMIC,CHIP	ECCH0007802	4.7 uF,10V ,M ,X5R ,TC ,1608 ,R/TP		
6	C279	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		

13. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C280	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C281	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C282	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C283	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C285	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C287	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C301	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C302	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C303	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C324	CAP,CHIP,MAKER	ECZH0000901	24 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C329	CAP,CHIP,MAKER	ECZH0000901	24 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C330	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C333	CAP,CERAMIC,CHIP	ECCH0000127	82 pF,50V,J,NP0,TC,1005,R/TP		
6	C334	CAP,CERAMIC,CHIP	ECCH0000127	82 pF,50V,J,NP0,TC,1005,R/TP		
6	C338	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C339	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C340	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C341	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C342	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C343	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C344	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C345	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C346	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C349	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C350	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C351	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C353	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C354	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C355	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C403	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C423	CAP,CERAMIC,CHIP	ECCH0000151	4.7 nF,25V,K,X7R,HD,1005,R/TP		

13. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C437	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C440	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C441	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C442	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C448	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C449	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C450	CAP,CERAMIC,CHIP	ECCH0000163	47 nF,10V,K,X5R,HD,1005,R/TP		
6	C451	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C452	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C453	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C454	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C455	CAP,CHIP,MAKER	ECZH0001126	820 pF,50V ,K ,X7R ,HD ,1005 ,R/TP		
6	C456	CAP,CHIP,MAKER	ECZH0001126	820 pF,50V ,K ,X7R ,HD ,1005 ,R/TP		
6	C457	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C458	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C460	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C461	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C462	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C463	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C464	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C465	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	CN303	CONNECTOR,BOARD TO BOARD	ENBY0016701	20 PIN,0.4 mm,STRAIGHT ,AU ,0.9 STACKING,MALE		
6	CN304	CONNECTOR,BOARD TO BOARD	ENBY0023601	54 PIN,0.4 mm,ETC , ,H=0.9, Header		
6	D201	DIODE,SWITCHING	EDSY0009901	ESC ,80 V,300 A,R/TP ,1.6*0.8*0.6(t)		
6	D202	DIODE,SWITCHING	EDSY0009901	ESC ,80 V,300 A,R/TP ,1.6*0.8*0.6(t)		
6	FB201	FILTER,BEAD,CHIP	SFBH0001003	220 ohm,2012 ,		
6	FB202	FILTER,BEAD,CHIP	SFBH0001003	220 ohm,2012 ,		
6	FL304	FILTER,EMI/POWER	SFEY0015101	SMD ,Pb-free_8ch_TVS_EMI_ESD ,; ,Filter,LCR		
6	FL305	FILTER,EMI/POWER	SFEY0015101	SMD ,Pb-free_8ch_TVS_EMI_ESD ,; ,Filter,LCR		
6	FL402	FILTER,DIELECTRIC	SFDY0002601	2450 MHz,2.0*1.25*1.0 ,SMD ,2400M~2500M, IL 3.8, 8pin, U-B, 34.2 _j95, BT (CSR BC41B143A) ,; ,BPF ,2450 ,100 ,SMD ,R/TP		

13. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	L201	INDUCTOR,SMD,POWER	ELCP0006703	10 uH,M ,3.2*2.6*1.0 ,R/TP ,		
6	L204	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L205	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L206	INDUCTOR,SMD,POWER	ELCP0005104	10 uH,M ,3.8*3.8*1.8 ,R/TP ,power inductor/ 850mA		
6	L207	INDUCTOR,CHIP	ELCH0005019	68 nH,J ,1005 ,R/TP ,		
6	L208	INDUCTOR,CHIP	ELCH0005019	68 nH,J ,1005 ,R/TP ,		
6	L301	INDUCTOR,CHIP	ELCH0010402	270 nH,M ,1005 ,R/TP ,CHIP		
6	L306	RES,CHIP,MAKER	ERHZ0000490	51 ohm,1/16W ,J ,1005 ,R/TP		
6	L307	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L308	RES,CHIP,MAKER	ERHZ0000490	51 ohm,1/16W ,J ,1005 ,R/TP		
6	L309	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L310	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L311	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L406	INDUCTOR,CHIP	ELCH0005006	33 nH,J ,1005 ,R/TP ,		
6	L407	INDUCTOR,CHIP	ELCH0003823	470 nH,K ,1608 ,R/TP ,chip coil,PBFREE		
6	L408	INDUCTOR,CHIP	ELCH0004730	33 nH,J ,1005 ,R/TP ,		
6	M401	MODULE,ETC	SMZY0015801	84 Ball 0.5pitch, BGA , Bluetooth+FM (6.0*6.0*1.0)		
6	Q201	TR,BJT,NPN	EQBN0017601	VMT3 ,0.15 W,R/TP ,		
6	Q202	TR,BJT,NPN	EQBN0017601	VMT3 ,0.15 W,R/TP ,		
6	Q301	TR,BJT,NPN	EQBN0017601	VMT3 ,0.15 W,R/TP ,		
6	R102	RES,CHIP	ERHY0000166	390 Kohm,1/16W ,F ,1005 ,R/TP		
6	R104	RES,CHIP,MAKER	ERHZ0000204	100 Kohm,1/16W ,F ,1005 ,R/TP		
6	R105	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R106	RES,CHIP,MAKER	ERHZ0000267	3300 ohm,1/16W ,F ,1005 ,R/TP		
6	R110	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R111	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R112	RES,CHIP,MAKER	ERHZ0000444	22 Kohm,1/16W ,J ,1005 ,R/TP		
6	R113	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R114	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R115	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R116	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		

13. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	R117	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R118	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R119	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R120	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R121	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R122	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R124	RES,CHIP,MAKER	ERHZ0000319	8200 ohm,1/16W ,F ,1005 ,R/TP		
6	R125	RES,CHIP,MAKER	ERHZ0000319	8200 ohm,1/16W ,F ,1005 ,R/TP		
6	R201	RES,CHIP,MAKER	ERHZ0000454	27 Kohm,1/16W ,J ,1005 ,R/TP		
6	R206	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R207	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R208	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R210	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R211	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R212	RES,CHIP,MAKER	ERHZ0000204	100 Kohm,1/16W ,F ,1005 ,R/TP		
6	R223	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R224	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R225	RES,CHIP,MAKER	ERHZ0000434	1 ohm,1/16W ,J ,1005 ,R/TP		
6	R228	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R229	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R230	RES,CHIP,MAKER	ERHZ0000243	2200 ohm,1/16W ,F ,1005 ,R/TP		
6	R231	RES,CHIP,MAKER	ERHZ0000279	39 Kohm,1/16W ,F ,1005 ,R/TP		
6	R232	RES,CHIP	ERHY0008402	160 Kohm,1/16W ,F ,1005 ,R/TP		
6	R233	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R235	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R236	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R237	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R239	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R241	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R244	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R248	RES,CHIP,MAKER	ERHZ0000358	280 Kohm,1/16W ,F ,1005 ,R/TP		

13. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	R249	RES,CHIP,MAKER	ERHZ0000516	820 Kohm,1/16W ,J ,1005 ,R/TP		
6	R252	RES,CHIP	ERHY0008402	160 Kohm,1/16W ,F ,1005 ,R/TP		
6	R254	RES,CHIP,MAKER	ERHZ0000213	120 Kohm,1/16W ,F ,1005 ,R/TP		
6	R303	RES,CHIP,MAKER	ERHZ0000407	1000 Kohm,1/16W ,J ,1005 ,R/TP		
6	R305	RES,CHIP,MAKER	ERHZ0000467	330 Kohm,1/16W ,J ,1005 ,R/TP		
6	R321	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R325	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R335	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R337	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R338	RES,CHIP,MAKER	ERHZ0000319	8200 ohm,1/16W ,F ,1005 ,R/TP		
6	R339	RES,CHIP,MAKER	ERHZ0000319	8200 ohm,1/16W ,F ,1005 ,R/TP		
6	R340	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R341	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R342	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R343	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R344	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R415	RES,CHIP,MAKER	ERHZ0000434	1 ohm,1/16W ,J ,1005 ,R/TP		
6	R417	RES,CHIP,MAKER	ERHZ0000434	1 ohm,1/16W ,J ,1005 ,R/TP		
6	R419	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R420	RES,CHIP,MAKER	ERHZ0000496	560 ohm,1/16W ,J ,1005 ,R/TP		
6	R421	RES,CHIP,MAKER	ERHZ0000456	2.2 ohm,1/16W ,J ,1005 ,R/TP		
6	R422	RES,CHIP,MAKER	ERHZ0000287	47 Kohm,1/16W ,F ,1005 ,R/TP		
6	SPFY00	PCB,MAIN	SPFY0163101	FR-4 ,0.8 mm,STAGGERED-10 , , , , , , , , , ,		
6	U101	IC	EUSY0335802	FBGA ,107 PIN,ETC ,FULLY 1.8V 1G(128Mx8) NAND+512M(DDR/8Mx4x16) SDRAM , , ,IC,MCP		
6	U102	IC	EUSY0322801	BGA ,293 PIN,R/TP ,Multimedia Extension EDGE BB		
6	U202	IC	EUSY0340301	uMLP ,10 PIN,R/TP ,typ Rdson 0.4ohm, 1.4X1.8 , ,IC,Analog Switch		
6	U203	IC	EUSY0323901	BGA PG-WFSGA ,121 PIN,R/TP ,SMPOWER3		
6	U205	IC	EUSY0254701	DFN 3*3*0.9 ,10 PIN,R/TP ,Charger IC, I Max 1A, Wall Adaptor/USB Charger		
6	U206	IC	EUSY0337001	TDFN33 ,12 PIN,R/TP ,3x3x1.0		
6	U207	IC	EUSY0294801	SON1612-6 ,6 PIN,R/TP ,3.1V 150mA LDO Pb-Free		

13. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	U208	IC	EUSY0102802	Micropak ,8 PIN,R/TP ,Daul 2 input AND gate,		
6	U210	IC	EUSY0238304	QFN ,28 PIN,R/TP ,Charge pump400mA,2LDO,200mA		
6	U301	IC	EUSY0250501	SC70 ,5 PIN,R/TP ,Comparator, pin compatible to EUSY0077701		
6	U306	IC	EUSY0342402	DFN ,8 PIN,R/TP ,Levelshifter,autodirection ,; ,IC,Bus Controller		
6	U307	IC	EUSY0321201	BGA ,64 PIN,R/TP ,6*6 ISP		
6	U401	IC	EUSY0279801	SC70 ,6 PIN,R/TP ,Dual Buffer, Pb Free		
6	VA303	VARISTOR	SEVY0003601	5.6 V ,SMD ,100pF, 1005		
6	VA304	VARISTOR	SEVY0003601	5.6 V ,SMD ,100pF, 1005		
6	VA305	VARISTOR	SEVY0003601	5.6 V ,SMD ,100pF, 1005		
6	VA306	VARISTOR	SEVY0003601	5.6 V ,SMD ,100pF, 1005		
6	VA307	VARISTOR	SEVY0003601	5.6 V ,SMD ,100pF, 1005		
6	VA308	VARISTOR	SEVY0003601	5.6 V ,SMD ,100pF, 1005		
6	VA309	VARISTOR	SEVY0003601	5.6 V ,SMD ,100pF, 1005		
6	VA310	VARISTOR	SEVY0003601	5.6 V ,SMD ,100pF, 1005		
6	VA311	VARISTOR	SEVY0003601	5.6 V ,SMD ,100pF, 1005		
6	VA312	VARISTOR	SEVY0003601	5.6 V ,SMD ,100pF, 1005		
6	VA313	VARISTOR	SEVY0003601	5.6 V ,SMD ,100pF, 1005		
6	VA314	VARISTOR	SEVY0003601	5.6 V ,SMD ,100pF, 1005		
6	VA315	VARISTOR	SEVY0003601	5.6 V ,SMD ,100pF, 1005		
6	X101	X-TAL	EXXY0018701	32.768 KHz,20 PPM,12.5 pF,70 Kohm,SMD ,3.2*1.5*0.9 ,		
3	SNGF00	ANTENNA,GSM,FIXED	SNGF0032301	3.0 ,-2.0 dBd,, ,internal, GSM900/1800/1900 ,; ,TRIPLE , -2.0 ,50 ,3.0		77

13. EXPLODED VIEW & REPLACEMENT PART LIST

12.3 Accessory

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Spec	Color	Remark
3	SBPL00	BATTERY PACK,LI-ION	SBPL0085703	3.7 V,800 mAh,1 CELL,PRISMATIC ,CMW PJT BATT, Innerpack, Europe Label, Pb-Free ; , 3.7 , 800 ,0.2C ,PRISMATIC ,43x34x46 , ,ALLTEL SILVER ,Innerpack ,CMW Slide & Folder	AIRY BLUE	
3	SGDY00	DATA CABLE	SGDY0010904	; ,[empty] ,[empty] ,[empty] ,18 ,BLACK ,6.2mm Plug Datacable ,[empty]		
3	SGEY00	EAR PHONE/EAR MIKE SET	SGEY0005558	; ,RMS 20mW(0.56V,RMS),16OHM ,116dB,1KHZ,3mW,96dB100HZ,116dB1KHZ,[empty],BLACK,EARPHONE HOUSING:SILVER,18P MMI CONNECTOR,,Earphone,Stereo		
3	SSAD00	ADAPTOR,AC-DC	SSAD0024901	100-240V ,5060 Hz,5.1 V,,7 A,CB/GOST ,AC-DC ADAPTOR ; , ,100Vac~350Vac ,5.1V (+0.15, -0.2) ,700mA ,5060 , ,WALL 2P ,I/O CONNECTOR ,		
		ADAPTOR,AC-DC	SSAD0024902	100-240V ,5060 Hz,5.1 V,,7 A,CB/GOST ,AC-DC ADAPTOR ; , ,100Vac~350Vac ,5.1V (+0.15,-0.2) ,700mA ,5060 , ,WALL 2P ,I/O CONNECTOR ,		

Note
